DAELIM

SERVICE MANUAL

HOW TO USE THIS MANUAL

This manual describes effective maintenance procedure for the BONITA manufactured by DAELIM Motor Co., Ltd.
To ensure safety and optimal operating conditions of the vehicle, carry out regular inspections according to the maintenance schedule (Section 2).
Sections 1 through 2 provide information on overall vehicle; section 3, assembly and disassembly procedures for external components, and section 4 describes maintenance procedure for the engine, frame and electrical systems.
To facilitate use of this manual, each page starts with disassembly and system diagrams, service information, and troubleshooting guide. If you cannot find the cause of trouble, refer to Section 18: Troubleshooting.

- Contents of this manual and specifications are subject to change without prior notice for improvement of vehicle quality.
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Bonita

1. SERVICE INFORMATION

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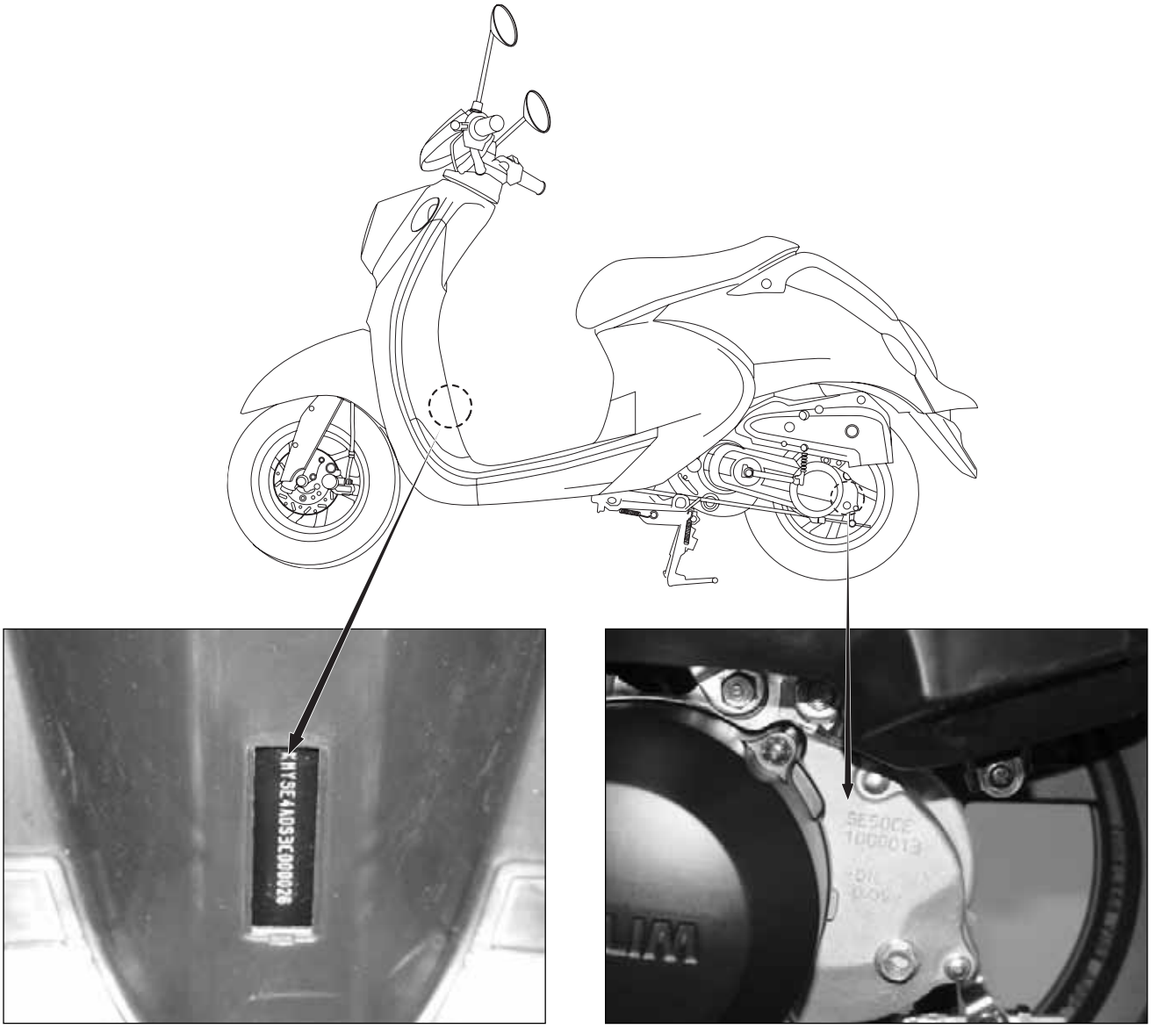
SERIAL NUMBER LOCATION

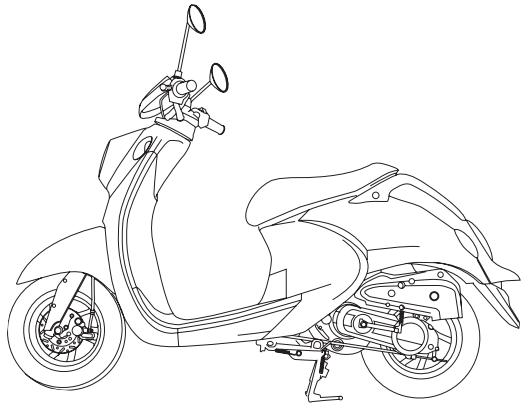


ENGINE SERIAL NUMBER LOCATION

FRAME SERIAL NUMBER LOCATION

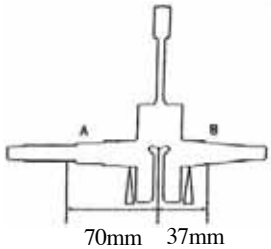
SPECIFICATION

ITEM		SPECIFICATION	ITEM	SPECIFICATION
TYPE OF VEHICLE		BONITA	BRAKING DISTANCE	8.0m (30km/h)
OVERALL LENGTH		1,795mm	MIN. REVOLUTION RADIUS	1,800mm
OVERALL WIDTH		730mm	COOLING TYPE	AIR-COOLED
OVERALL HEIGHT		1,075mm	STARTING	STARTER MOTOR, KICK
WHEEL BASE		1,225mm	MOTOR TYPE	2-CYCLE
MOTOR TYPE		SE50C	NO. OF CYLINDERS, MOUNTING	1 CYLINDER, TRANSVERSE
DISPLACEMENT		49.5cc	VALVE APPARATUS	READ VALVE, PISTON VALVE COMBINATION
FUEL TYPE		UNLEADED GASOLINE	BORE & STROKE	40 X39.4mm
DRY WEIGHT	FRONT AXLE	30kg	COMPRESSION RATIO	7.3:1
	REAR AXLE	45kg	MAX. OUTPUT	2.95PS/6,000rpm
	TOTAL	75kg	MAX. TORQUE	0.35kgf · m/5,500rpm
PASSENGERS		2 (65kg)	PRIMARY SPEED REDUCTION RATIO	3.077
GROUND CLEARANCE		105mm	SECONDARY SPEED REDUCTION RATIO	3.461
CASTER		27°	TRANSMISSION	NON STAGE TRANSMISSION
TRAIL		73mm	TRANSMISSION RATIO 1ST GEAR	2.41~0.76
FRAME TYPE		UNDER BONE		



MAINTENANCE INFORMATION

ITEM		STANDARD	USE LIMITS
LUBRICATION SYSTEM	ENGINE OIL TANK CAPACITY FULL CAPACITY RECOMMENDED ENGINE OIL TRANSMISSION OIL CAPACITY FULL CAPACITY RECOMMENDED TRANSMISSION OIL	1.2 liters Motix, 2-Cycle Oil 0.09 liters DMC Pure Mission Oil or SAE 80W/90	
LUBRICATION TYPE	OIL FILTER TYPE OIL PUMP TYPE	Separation Lubrication Current Filtration, Plunger Type	
COOLING TYPE	COOLING TYPE	Air-Cooled	
FUEL SYSTEM	FUEL TANK CAPACITY FULL CAPACITY AIR CLEANER TYPE CARBURETOR SETTING MARK VENTURI DIAMETER AIR SCREW OPENING FLOAT LEVEL IDLING RPMS NO. OF JET NEEDLES MAIN JET SLOW JET THROTTLE GRIP CLEARANCE	5 *l* Urethane Foam PA35 14mm 1 1/2 Rotation(1 1/8 Rotation) 12.2 2,000rpm 2 #65 #35 2-6mm	
CYLINDER HEAD, CYLINDER, PISTON	PORT OPEN/CLOSE PERIODS INHALATION OPEN CLOSE EXHAUST OPEN CLOSE SCAVENGING OPEN CLOSE CYLINDER HEAD COMPRESSION PRESSURE CYLINDER ID MARK LOCATION INSIDE DIAMETER ID MARK(A) NO ID MARK CYLINDRICAL DEGREE OUT OF ROUNDNESS PISTON OUTSIDE DIAMETER ID MARK(A) ID MARK(B) NO ID MARK CYLINDER AND PISTON CLEARANCE PISTON PIN HOLE INSIDE DIAMETER PISTON PIN OUTSIDE DIAMETER PISTON AND PISTON PIN CLEARANCE PISTON RING GAP TOP SECOND RING MARK CONNECTING ROD SMALL END PORTION DIAMETER	Auto Control Auto Control 80.5 BBDC 80.5 ABDC 55 BBDC 55 ABDC 10kgf/㎠-600rpm Top of Cylinder φ40.005 ~ φ40.010mm φ40.010 ~ φ40.015mm - - φ39.955 ~ φ39.960mm φ39.965 ~ φ39.970mm φ39.960 ~ φ39.965mm 0.040 ~0.055mm φ12.002 ~ φ12.008mm φ11.994 ~ φ12.000mm 0.002 ~ 0.014mm 0.15 ~ 0.3mm 0.15 ~ 0.3mm Turning up φ17.005 ~ φ17.017mm	 0.10mm 0.10mm

ITEM				STANDARD	USE LIMITS
CLUTCH	CLUTCH	AUTOMATIC		Automatic Centrifugal	
		TYPE		Continuously Variable Transmission	
		CLUTCH OUTER DIAMETER		ϕ107.0~ ϕ107.2mm	
		CLUTCH LINING THICKNESS		4.0mm	
	DRIVE BELT	WIDTH		15mm	
	MOVABLE DRIVE FACE				
		BUSH INSIDE DIAMETER		ø 20.035~ ø 20.085mm	
		BOSS OUTSIDE DIAMETER		ø 20.010~ ø 20.025mm	
		WEIGHT ROLLER OUTSIDE DIAMETER		ø 15.92~ ø 16.08mm	
	DRIVEN PULLEY	FACE SPRING FREE LENGTH		ø 98.1mm	
		FACE OUTSIDE DIAMETER		ø 33.965~ ø 33.985mm	
		MOVABLE FACE INSIDE DIAMETER		ø 34.000~ ø 34.025mm	
CRANK SHAFT	CRANK SHAFT	LARGE END SIDE CLEARANCE		0.15~0.55mm	0.60mm
		CONNECTING ROD LARGE END RIGHT ANGLE DIRECTION CLEARANCE		ø 0.010~ ø 0.022mm	0.04mm
		CRANK SHAFT SHAKING	A	0.05mm(70mm from center)	0.15mm
			B	0.03mm(37mm from center)	0.10mm
	 70mm 37mm				
FRONT, REAR WHEELS	WHEELS	RIM RUNOUT	RADICAL	-	2.0mm
			AXIAL	-	2.0mm
		AXLE DEFLECTION		-	0.2mm
	TIRES	TYPE		TUBELESS	-
		TIRE PRESSURE	FRONT	1.25kgf/㎠	-
			REAR	2.00kgf/㎠	-
		TIRE SIZE	FRONT	90/90-10-50J	-
			REAR	90/90-10-50J	

ITEM			STANDARD	USE LIMITS
BRAKES	FRONT BRAKE	LEVER FREE PLAY	10~20mm	-
		BRAKE FLUID	DOT3 or DOT4	-
		BRAKE PAD THICKNESS	-	to wear line
		DISK THICKNESS	3.0mm	2.5mm
		DISK SHAKING	-	0.3mm
		DISK WEAR LINE	2.5mm	
		MASTER CYLINDER INSIDE DIAMETER	11.000-11.043mm	11.05mm
		MASTER PISTON OUTSIDE DIAMETER	10.957-10.984mm	10.91mm
		CALIPER CYLINDER INSIDE DIAMETER	30.230-30.280mm	30.29mm
		CALIPER PISTON OUTSIDE DIAMETER	30.148-30.198mm	30.14mm
	REAR BRAKE	LEVER FREE PLAY	10~20mm	-
		DRUM INSIDE DIAMETER	95mm	95.5mm
		LINING THICKNESS	4.0mm	2.0mm
IGNITION SYSTEM	SPARK PLUG	STANDARD	BPR6HS	
		OP (at low speed)	BR4HSA	
		OP (at high speed)	BPR7HS	
		PLUG GAP	0.6~0.7mm	
	IGNITION TIMING	F MARK	BTDC 15 /2,000rpm	
	PEAK VOLTAGE	IGNITION COIL(PRIMARY VOLTAGE)	300V ±25V	
		EXCITE COIL	over 100V	
		PULSE GENERATOR	over 2.8V	
	IGNITION COIL RESISTANCE VALUES(20)			
		PRIMARY COIL	0.1~0.5 Ω	
		SECONDARY COIL(PLUG CAP CONNECTION)	6.3~10.3 KΩ	
		SECONDARY COIL(PLUG CAP DISCONNECTION)	2.8 KΩ	
	EXCITE COIL RESISTANCE VALUE(20)		50~200 Ω	
	PLUSE GENERATOR RESISTANCE VALUE(20)		400~800 Ω	
CHARGING SYSTEM, AC GENERATOR	AC GENERATOR	TYPE	AC	
		OUTPUT	12V-11A/5,000rpm	
		CHARGING COIL RESISTANCE VALUE(20)	0.4~1.0 Ω	
		LIGHTING COIL RESISTANCE VALUE(20)	0.2~0.8 Ω	
	REGULATOR/RECTIFIER	TYPE	Semi-conductor	
		CONTROL VOLTAGE LAMP SIDE	12.0~14.0V/5,000rpm	
		CHARGING SIDE	13.0~15.0V/5,000rpm	
	REGISTER RESISTANCE VALUE	REGISTER(6.7 Ω 5W)	6.3-7.1 Ω	

ITEM			STANDARD	USE LIMITS
LIGHTS, METER, SWITCHES	LIGHTS, BULBS	HEADLIGHT	12V-35/35W	
		TAIL/STOP LIGHT	12V-5/21W	
		WINKER LIGHTS FRONT	12V-10W X 2	
		REAR	12V-10W X 2	
		HIGH BEAM LAMP	12V-3W X 1	
		OIL LEVEL INDICATOR LAMP	12V-3W X 1	
		WINKER PILOTS	12V-3.0W	
		FUSE	7A	
		METER LIGHTS	12V-1.7W X 2	
		LICENCE LAMP	12V-4W X 1	
BATTERY		TYPE	MF BATTERY	
		CAPACITY	12V-3AH	
		TERMINAL VOLTAGE(20)	13.0~13.2V	
		CHARGING CURRENT/STANDARD	0.4A/5h	
		CHARGING CURRENT/RAPID	4A/0.5h	

TWIST TORQUE

ENGINE

TWIST PART	NUMBER	SCREW DIAMETER (mm)	TWIST TORQUE	REFERENCE
FLY WHEEL NUT	1	10	4.0kgf/m	
DRIVE FACE NUT	1	10	4.0kgf/m	
CYLINDER HEAD BOLT	4	6	1.0kgf/m	
SPARK PLUG	1	14	1.4kgf/m	
DRIVEN FACE NUT	1	28	5.5kgf/m	
CLUTCH OUTER NUT	1	10	4.0kgf/m	
OIL LEVEL CHECK BOLT	1	8	1.3kgf/m	
EXHAUST PIPE JOINT NUT	2	6	1.2kgf/m	
MUFFLER BRACKET BOLT	2	8	3.3kgf/m	
CRANK CASE BOLT	6	6	1.0kgf/m	

FRAME PARTS

TWIST PART	NUMBER	SCREW DIAMETER	TWIST TORQUE	REFERENCE
STEERING STEM LOCK NUT	1	-	7.0kgf/m	
HANDLE POST TWIST NUT	1	10	5.0kgf/m	
FRONT BRAKE LEVER PIVOT BOLT	1	6	1.0kgf/m	
FRONT BRAKE LEVER PIVOT NUT	1	6	1.0kgf/m	
REAR BRAKE LEVER PIVOT SCREW	1	5	0.3kgf/m	
REAR BRAKE LEVER PIVOT NUT	1	5	0.4kgf/m	
MASTER CYLINDER HOLDER BOLT	2	6	1.2kgf/m	
MASTER CYLINDER COVER SCREW	2	4	0.2kgf/m	
BRAKE HOSE BOLT	2	10	3.5kgf/m	
CALIPER MOUNT BOLT	2	8	2.7kgf/m	
CALIPER BREATHER VALVE	1	8	0.6kgf/m	
CALIPER PAD PIN	2	10	1.8kgf/m	
CALIPER SLIDE PIN BOLT	1	8	2.3kgf/m	
BRAKE SWITCH SCREW	1	4	0.12kgf/m	
STEERING STEM BOLT(FRONT FORK SIDE)	4	10	3.5~4.5kgf/m	
FRONT AXLE NUT	1	12	6.0kgf/m	
REAR AXLE NUT	1	14	11.0kgf/m	
SPEEDOMETER CABLE SETTING SCREW	1	4	0.2kgf/m	
REAR BRAKE ARM BOLT	1	6	0.6kgf/m	
FRONT BRAKE DISK BOLT	3	8	3.9kgf/m	
REAR CUSHION UPPER BOLT	1	10	4.0kgf/m	
REAR CUSHION LOWER BOLT	1	10	4.0kgf/m	
ENGINE HANGER BRACKET NUT	2	10	5.0kgf/m	
(FRAME SIDE)			(7.3kgf/m)	
EXHAUST PIPE JOINT NUT	3	6	1.2kgf/m	
MUFFLER BRACKET BOLT	2	8	3.3kgf/m	
EXHAUST PIPE PROTECTOR SCREW	4	6	0.5kgf/m	

STANDARD TWIST TORQUE

TYPE	TWIST TORQUE			TYPE	TWIST TORQUE		
	N-m	kgf-m	ft-lb		N-m	kgf-m	ft-lb
5mm BOLT, NUT	5	0.5	4	5mm SCREW	4	0.4	3
6mm BOLT, NUT	10	1.0	7	6mm SCREW	9	0.9	7
8mm BOLT, NUT	21	2.1	15	6mm SCREW FLANGE BOLT, NUT	9	0.9	7
10mm BOLT, NUT	35	3.5	25	8mm SCREW FLANGE BOLT, NUT	27	2.7	20
12mm BOLT, NUT	55	5.5	40	10mm SCREW FLANGE BOLT, NUT	40	4.0	29

Bolts not appearing in the following table are tightened using standard torque.

SPECIALIZED TOOLS

TOOL NAME	TOOL NO.	USAGE	CHAPTER
FLOAT LEVEL GAUGE	07401-001000	Carburetor Oil Level Measurement	5
BEARING DIRVER	07945-GC80000	Change of Driven Face Outer Bearing	7
BEARING REMOVER	07936-3710300	Disassembly of Driven Face Needle Bearing	
REMOVER HANDLE	07936-3710100		
REMOVER WEIGHT	07741-0010201		
DRIVER HANDLE A	07749-0010000	Assembly of Driven Face Needle Bearing	
OUTER DRIVER 24 X 26mm	07746-0010700		
CLUTCH SPRING COMPRESSOR	07960-KM10000	Disassembly/Assembly of Clutch/Driven Face	
SOCKET WRENCH 39mm	0723-03900		
CLUTCH CENTER HOLDER	07724-0050001	Disassembly/Assembly of Driven Pulley/Driven Face	
UNIVERSAL HOLDER	07725-0030000	Disassembly/Assembly of Clutch/Driven Pulley	
CRANK ASSEMBLY	0740-00001	Assembly of Drive Shaft	9
DRIVER HANDLE A	0749-0010000	Assembly of Drive Shaft Bearing	
OUTER DRIVER 37 X40mm	07746-0010200		
DRIVER PILOT, 17mm	07746-0040400		
UNIVERSAL BEARING PULLER	0755-00001	Disassembly of Crank Shaft Bearing	
CRANK CASE PULLER	0751-00003	Disassembly of R/L Crank Case, Crank Shaft	
CRANK ASSEMBLY	0740-00001	Disassembly of R.Crank Case, Crank Shaft	
OUTER DRIVER 52 X 55mm	07746-0010400	Assembly of Crank Shaft Bearing	
DRIVER PILOT 20mm	07746-0040500		
DRIVER HANDLE A	07749-0010000		
CRANK ASSEMBLY	0740-00001	Assembly of R/L Crank Shaft Oil Seal	
LOCK NUT WRENCH A	07916-1870101	Disassembly of Top Cone Race	10
LOCK NUT WRENCH B	07916-KM10000		
BALL RACE REMOVER	07946-GA70000	Assembly of Ball Race	
OUTER DRIVER, 42 X 47mm	07746-0010300		
DRIVER HANDLE A	07749-0010000		
SHOCK ABSORBER COMPRESSER	07GM-0010000	Disassembly/Assembly of Rear Cushion	11
COMPRESSER SCREW ASS Y	079GME-0010100		
SPRING COMPRESSER ATTACHMENT	07967-GA70102		
SPRING COMPRESSER ATTACHMENT	07JME-GW20100		
UNIVERSAL HOLDER	07725-0030000	Disassembly/Assembly of Fly Wheel	13
A.G.G ROTOR PULLER	0750-00006	Disassembly of Fly Wheel	

LUBRICATION OIL

ENGINE PARTS

APPLICATION AREAS	CAUTIONARY SUGGESTIONS	OIL TYPE
CRANK CASE JOINING FACE CRANK CASE REVOLUTION PART CYLINDER BIG REVOLUTION PART, FRICTION PART		Gasket Fluid(TB 1215) Ultra-2 Super, 2-Cycle Oil (Separation Lubrication Use)
TRANSMISSION(FINAL REDUCTION)	Capacity : 0.09 ℓ	SAE 80W/90
KICK SPINDLE BUSH STARTER PINION STARTER DRIVE GEAR OPERATION PART MOVEABLE DRIVEN FACE (DRIVEN FACE OPERATION PART)	Capacity : 5.0~5.6g	Multi-Purpose Grease
OIL PUMP DRIVE GEAR		Molybdenum Grease

FRAME PARTS

APPLICATION AREAS	CAUTIONARY SUGGESTIONS	OIL TYPE
FRONT WHEEL DUST SEAL EDGES FRONT PIVOT ARM BUSH FRICTION FACE FRONT PIVOT ARM SEAL EDGES REAR BRAKE CAM AXLE PART, CAM PART WHOLE AREA OF REAR BRAKE CAM DUST SEAL REAR BRAKE ANCHOR PIN AXLE PART FRONT BRAKE OIL SEAL EDGES FRONT BRAKE CAM AXLE PART, CAM PART WHOLE AREA OF FRONT BRAKE CAM DUST SEAL SPEEDOMETER GEAR/PINION INSIDE DIAMETER PART, AXLE PART, GEAR TEETH PART BALL RACE, BEARING REVOLUTION PART		Multi-Purpose Grease
HANDLE GRIP INSIDE AXLE PART		Adhesives ROYAL BOND 1300

SYMBOLS / ABBREVIATIONS

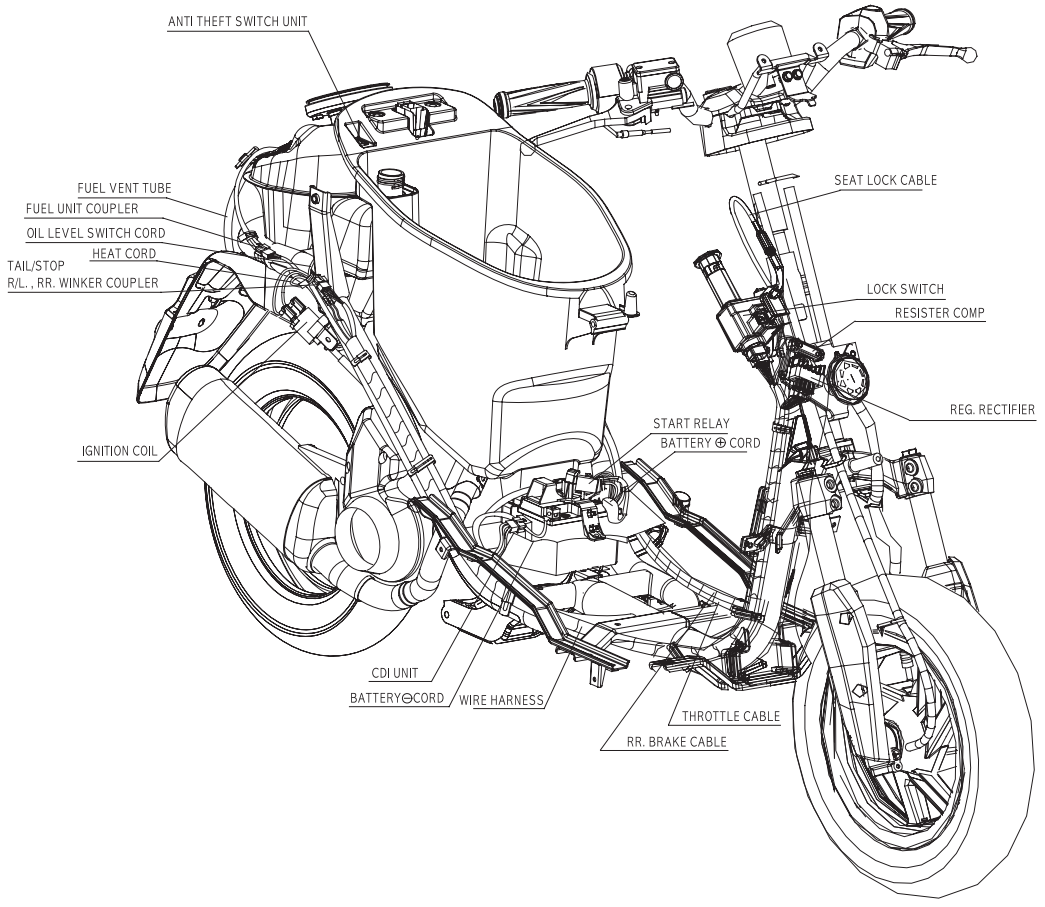
The following symbols are used in this manual to represent job-related warnings or cautions.

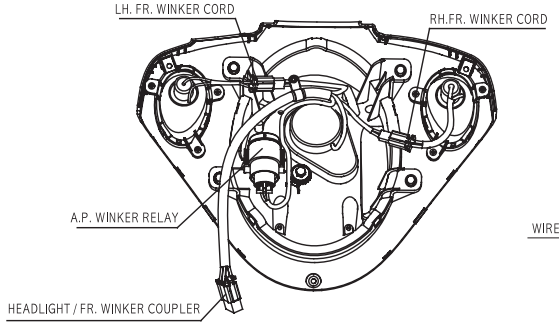
SYMBOL	MEANING	SYMBOL	MEANING
WARNING	Indicates dangerous area. Serious accident may result if instructions are not followed.	**CAUTION**	Indicates important work. Minor injury or vehicle part damage may result if instruction are not followed.
		NOTE	Indicates general safety matters. Provides safety and appropriate handling procedures.

The following symbols indicate needed lubrication steps, the changing of parts, and required specialized tools, etc. when performing maintenance.

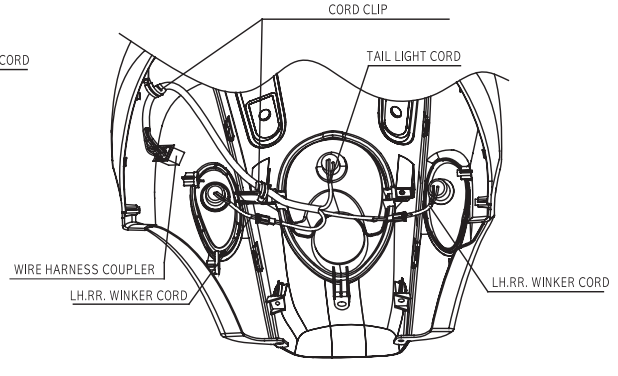
SYMBOL	CAUTION
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 1:1)
	Use multi-purpose grease (Lithium based multi-purpose grease NLG #2 or equivalent)
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent)
	Use molybdenum disulfide paste containing more than 40% molybdenum disulfide, NLGI #2 or equivalent)
	Use silicone grease
	Apply a locking agent. Use the agent of the middle strength, unless otherwise specified
	Apply sealant
	Replace the parts with new ones before assembly
	Use brake fluid, DOT3 or DOT4. Use the recommended brake fluid, unless otherwise specified
	Use Fork or Suspension Fluid
	Use special tool
	Use option tool. These tools are obtained as you order parts.
(⇨3-1)	Indicates reference page. (Example : Refer to page 3-1)

Special grease, etc. that do not correspond to the above are indicated without using symbols.

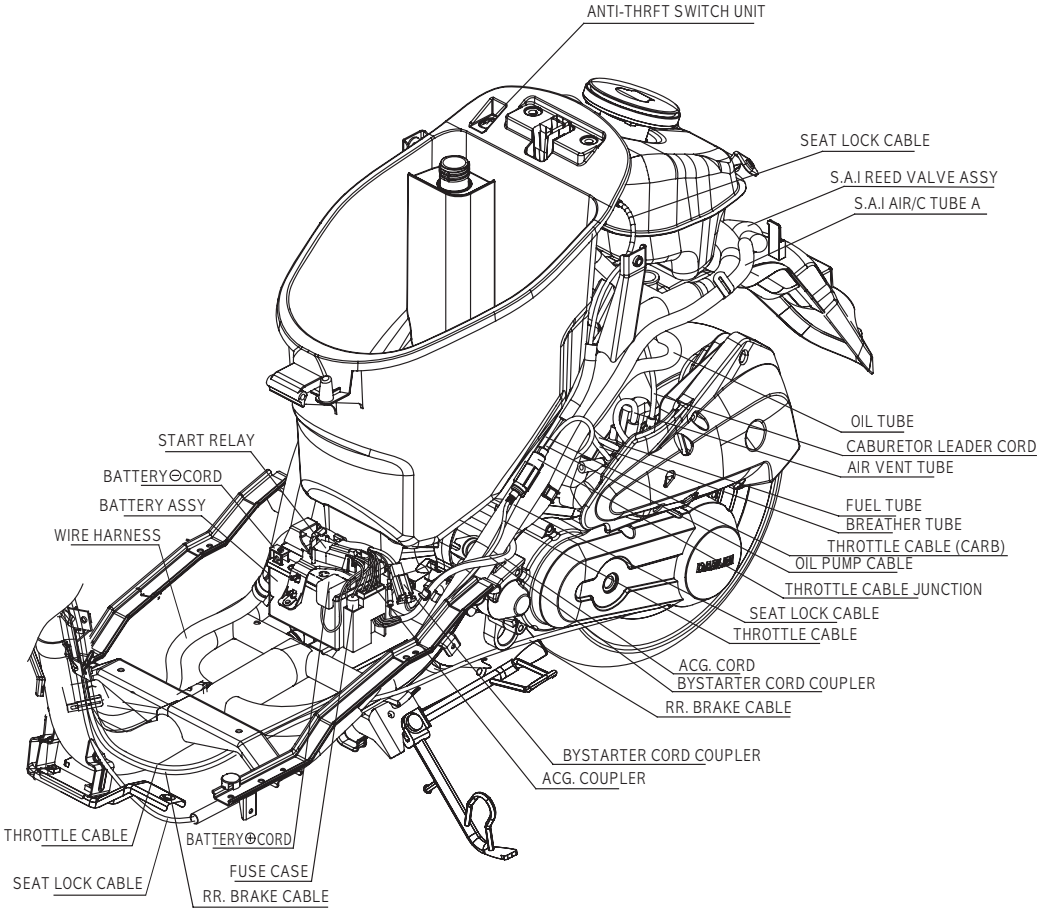


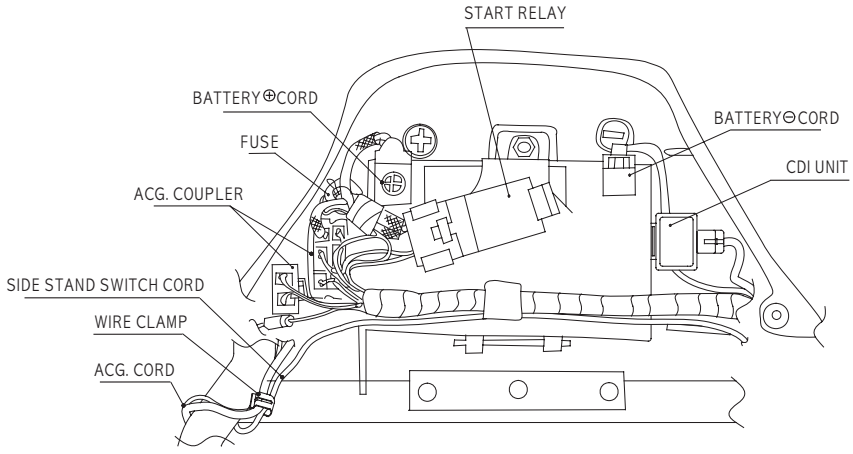


HEAD LIGHT

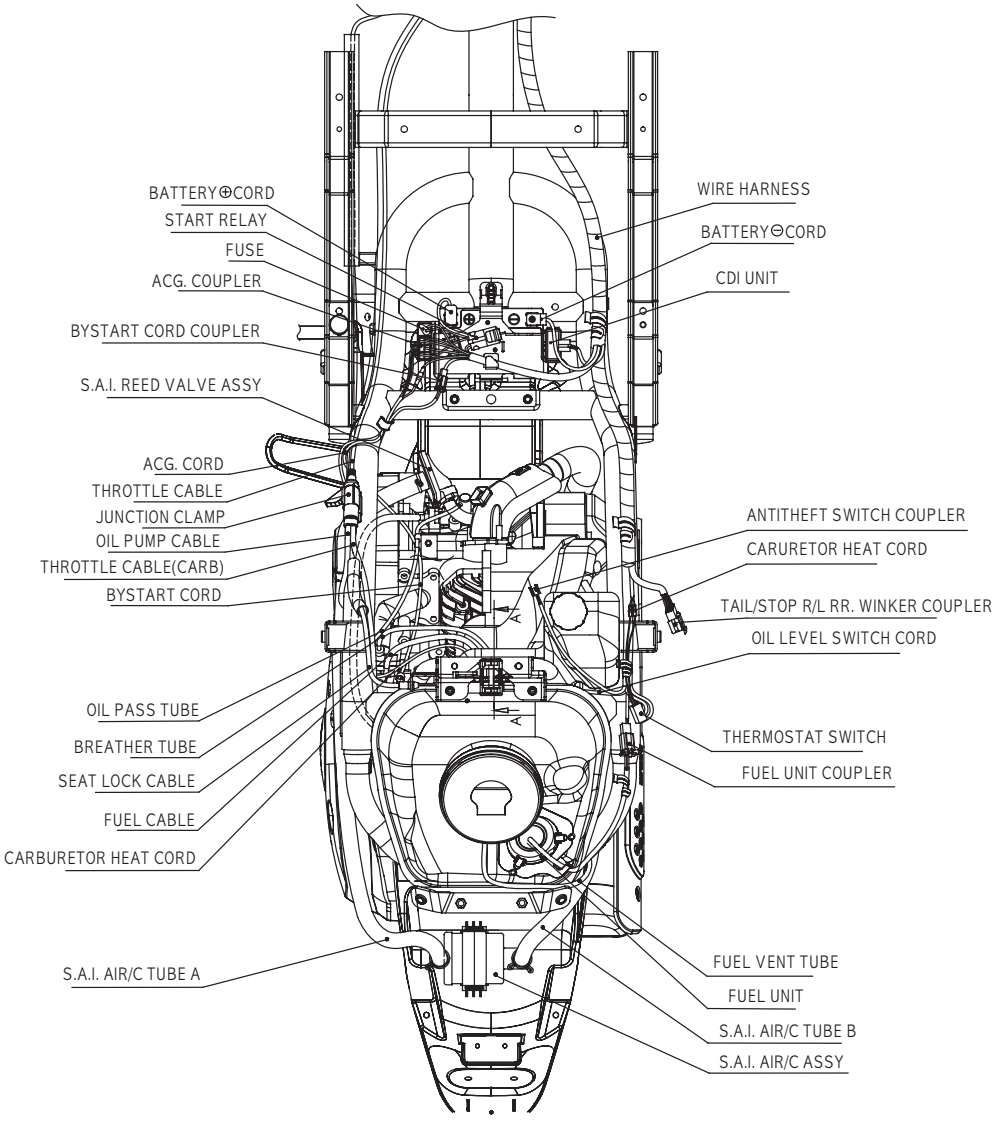


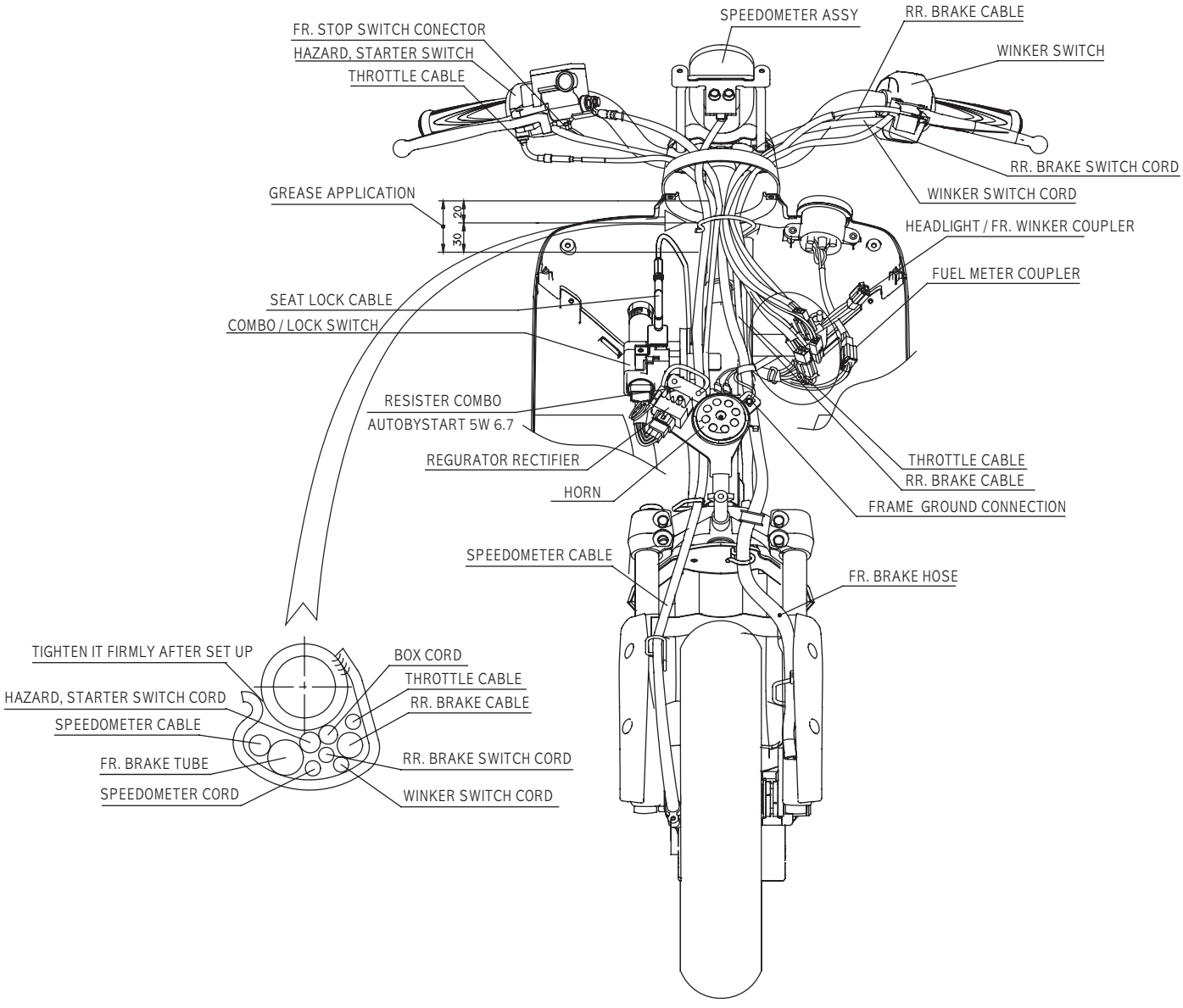
TAIL LIGHT


ANTI-THRFT SWITCH UNIT
SEAT LOCK CABLE
S.A.I REED VALVE ASSY
S.A.I AIR/C TUBE A
OIL TUBE
CABURETOR LEADER CORD
AIR VENT TUBE
FUEL TUBE
BREATHER TUBE
THROTTLE CABLE (CARB)
OIL PUMP CABLE
THROTTLE CABLE JUNCTION
SEAT LOCK CABLE
THROTTLE CABLE
ACG. CORD
BYSTARTER CORD COUPLER
RR. BRAKE CABLE
BYSTARTER CORD COUPLER
ACG. COUPLER
START RELAY
BATTERY⊖CORD
BATTERY ASSY
WIRE HARNESS
THROTTLE CABLE
BATTERY⊕CORD
FUSE CASE
SEAT LOCK CABLE
RR. BRAKE CABLE



BATTERY PART




FR. STOP SWITCH CONECTOR
HAZARD, STARTER SWITCH
THROTTLE CABLE
SPEEDOMETER ASSY
RR. BRAKE CABLE
WINKER SWITCH
RR. BRAKE SWITCH CORD
WINKER SWITCH CORD
GREASE APPLICATION
20
30
HEADLIGHT / FR. WINKER COUPLER
FUEL METER COUPLER
SEAT LOCK CABLE
COMBO / LOCK SWITCH
RESISTER COMBO
AUTOBYSTART 5W 6.7
REGURATOR RECTIFIER
HORN
THROTTLE CABLE
RR. BRAKE CABLE
FRAME GROUND CONNECTION
SPEEDOMETER CABLE
FR. BRAKE HOSE
TIGHTEN IT FIRMLY AFTER SET UP
HAZARD, STARTER SWITCH CORD
SPEEDOMETER CABLE
FR. BRAKE TUBE
SPEEDOMETER CORD
BOX CORD
THROTTLE CABLE
RR. BRAKE CABLE
RR. BRAKE SWITCH CORD
WINKER SWITCH CORD

GENERAL SAFETY

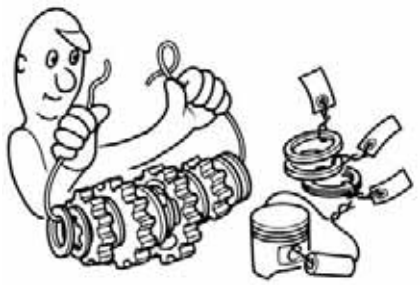
WARNING

1. Do not run the engine for a long time in closed or not well-ventilated area because the exhaust gas contains toxic substances such as carbon monoxide, hydrocarbon, nitric oxide.
2. The battery fluid(lean sulfuric acid) is extremely toxic. It is dangerous if skin is exposed to it or if it enters into the eye. Be careful in handling. When exposed to the battery fluid, wash it with water and get a medical check up.(store the battery fluid in a safe place to avoid touching by the children)
3. Pay attention not to be burned and always put on the protection gears because the engine or the muffler is hot right after engine stops.
4. Gasoline is extremely flammable. Maintenance must performed in the place free of the open fire or electric spark.
5. When more than two person are working, always pay attention to other worker's action and alway have safety in mind.
6. The skin exposed to used engine oil can be a major reason of the skin cancer. Pay attention not to exposed and wash carefully with soap and water after handling.
7. If compressed air is used to clean the brake, dust scattered in the air can be breathed in by workers. Please take action not to scatter dust in the brake cleaner, etc.
8. Flammable nitrogen gas is generated during charging the battery so charging must be performed in well-ventilated area and free of the open fire and spark.

SERVICE RULES

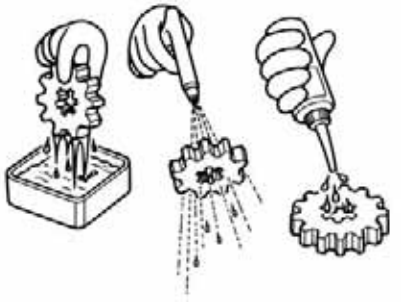
1. Parts and lubrication oil must be DAELIM genuine or recommended parts.
2. Before maintenance, remove deposit or dust from the chasis.

3. Store the parts of each system discriminatively to install each part in the right place.



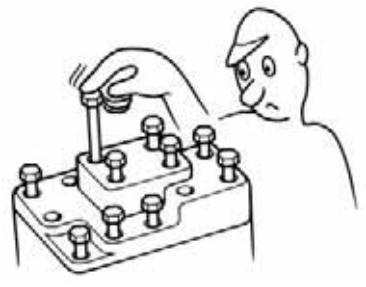
4. After removing gasket, O-ring, piston pin clip and cotter pin, always replace them with the new one. When removing the snap ring, it can be easily missed after transformation or installation.

5. Clean the parts after the overhaul and before the test and remove the cleaning oil with compressed air. Apply oil to seal face during installation.

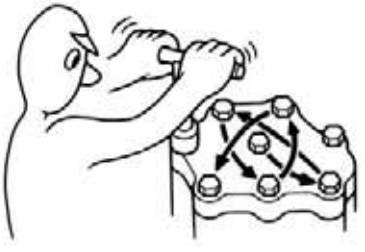


6. Check necessary place and measure necessary data during installation. When installing, return to the state before removing.

7. Align the bolts to uniform the tightening points before tightening them when you don't know the bolt length.



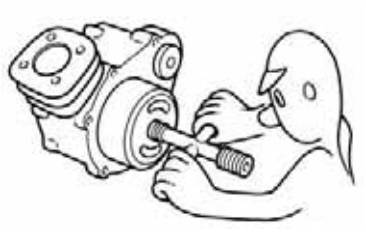
8. Bolts, nuts and pieces must be tightened from the bigger diameter to the smaller one, from inside to outside and diagonally with the specified torque.



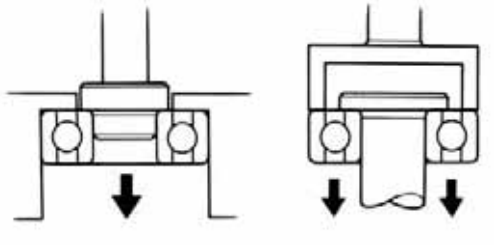
9. Check to see if the rubber part is worn out when removing it and replace it if necessary. Some rubber part is weak to gasoline and kerosene, so pay attention not to soak with gasoline or oils.

10. Recommended grease must be applied to or filled in the specified place.

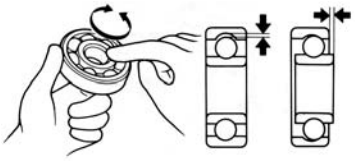
11. Maintenance needed to use the specialized tools must performed with the right tool.



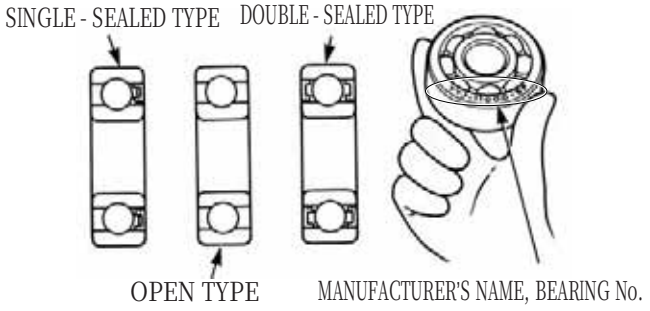
12. Never reuse the ball bearing removed with the ball applied pressure when removing press-fitted the bearing.



13. Check the smooth rotation of inner or outer race of the ball bearing by rotating it manually.
    - Replace the ball bearing having excessive axial/ longitudinal hanging.
    - Wipe the ball bearing likely to have hanging with cleaning oil.(except double-sided sealed type ball bearing)
    - Replace the ball bearing of which press-fitted part is slacked at the case or shaft.

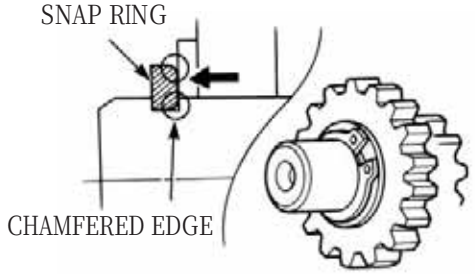


14. Pay attention to installation direction in case of the single-sided sealed ball bearing. Install the open-direction or double-sided sealed bearing in the way that the face marked with manufacturer and size should direct to the outer axle.



15. When blowing the ball bearing with compressed air after cleaning, keep the race from rotating. High speed rotation of the race may damage the bearing. Prior to installation, apply oil or grease to the bearing.

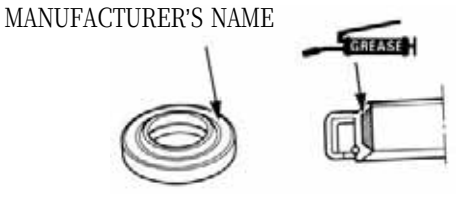
16. Install the snap ring so that chamfered side directs to the load-applied side. After installation, check the proper installation by rotating the snap ring.



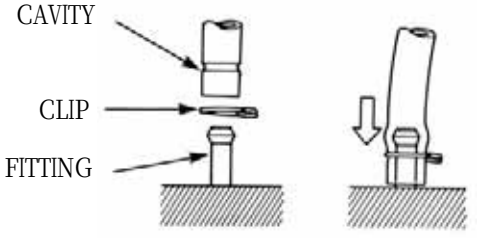
17. Check each part for proper tightening and operation after installation.

18. The brake fluid and coolant can damage the painted plastic or rubber parts. Keep these parts from contacting with them and wash these parts with water in case of contact.

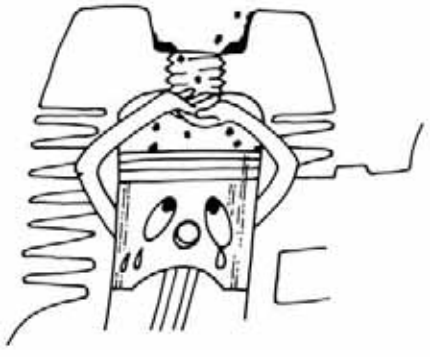
19. Install the oil seal so that the manufacturer marked surface directs outer surface.(direction not covered with oil)
    - Pay attention not to bend or damage the lip
    - Apply the grease to the lip



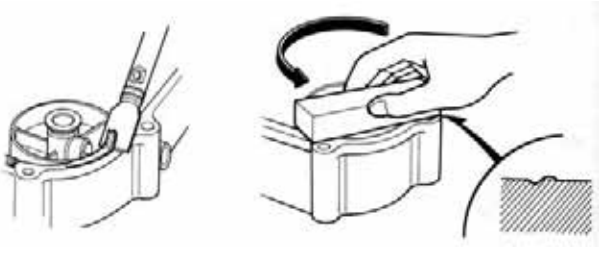
20. Connect the tube until the tube fully inserted in the joint. Install the clip if it is supplied. Replace the tube having slacked end.



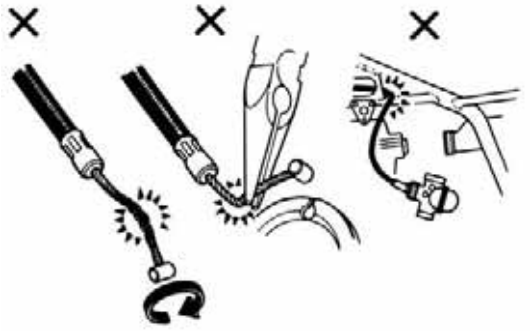
21. Keep the pneumatic system interior or the engine interior from the infiltration of dust.



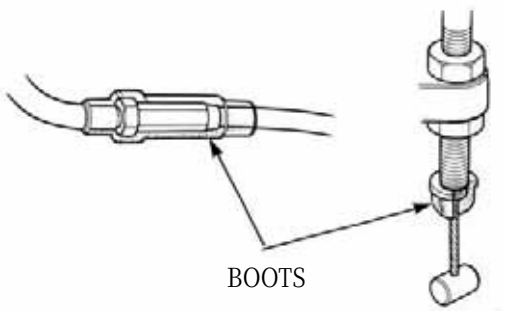
22. Install the gasket mounted in the contact surface of each case of the engine while removing gasket material completely. Remove damaged contact surface by wiping with the oil stone equally.



23. Pay attention not to bend the cable excessively. Transformed or damaged cable may cause malfunction or damage.

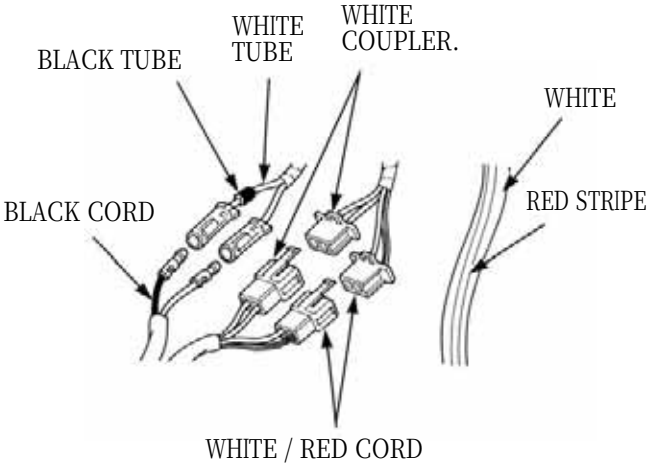


24. Install the boots with the installing groove by inserting the boots into the groove.

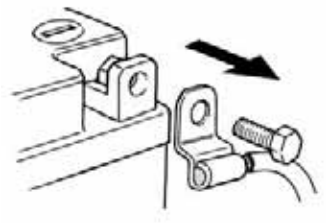


CAUTION WHEN WIRING

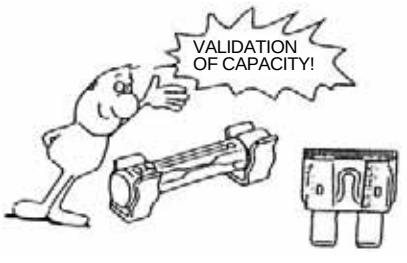
- Each cord must be connected depending on its color. When connecting different cord, attach color tube around the connector. Connect the coupler to the connector with same color and same pin number.
- Identify the two-colored cord by main color first and then spriped color .



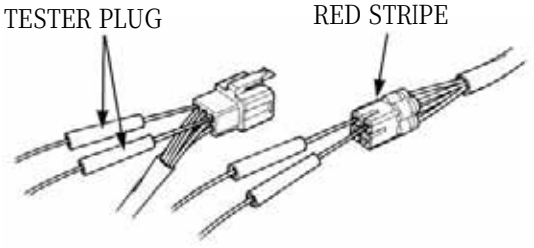
- When disconnecting the battery, the minus terminal must be disconnected first.
- Make sure that the tool such as spanner do not contact with the frame.



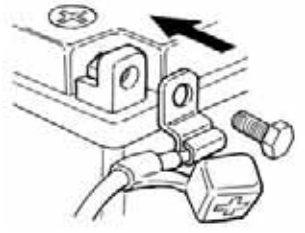
- If the fuse is short-circuited, find out the cause and repair. Replace with the fuse having the specified capacity.



- When measuring voltage or resistance of the cord terminal using tester, contact the tester plug behind of the coupler. Pay attention not to open the cord terminal and contact the tester plug from the front of the coupler in case of water-proof coupler.



- Recheck the condition of contact, securing and continuity of each part after maintenance.
- When connecting the battery, the plus terminal must be connected first.
- After connecting the terminal, apply the grease to the terminal.

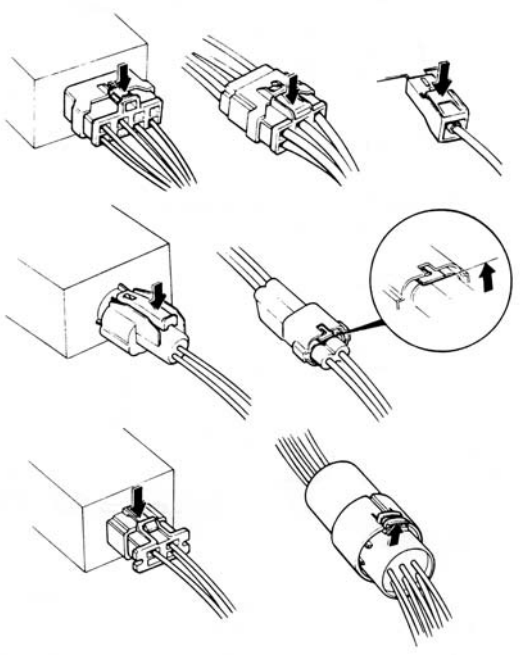


- Connect covers to the terminal after maintenance.

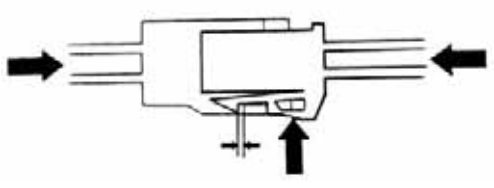
- If there is rust in the terminal, remove the rust with sand paper prior to connecting.

- Turn off the main switch before connecting/disconnecting.
- Release the lock to disconnect the lock of the coupler.
- The lock of the coupler has two types according to releasing method(press type and pull type) so release it properly according to the shape.

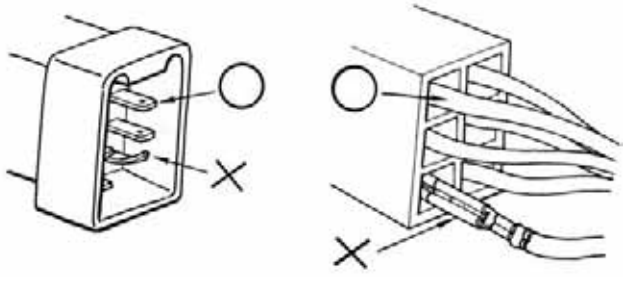
- Typical releasing method of the coupler is illustrated in the following.



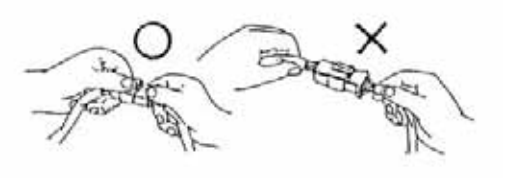
- Release the lock by inserting the coupler slightly and then narrowing connection to remove the coupler.



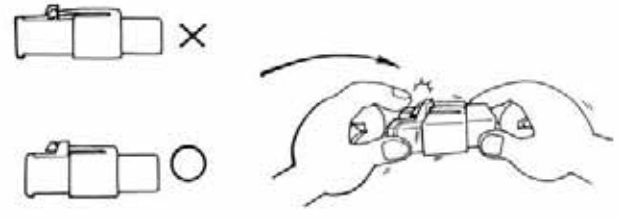
- Check to see if there is bended terminal and secure it to avoid disconnecting.



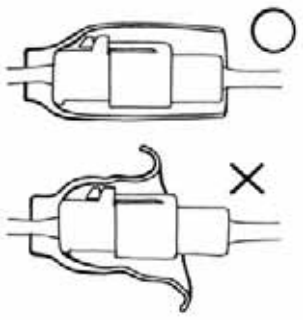
- When disconnecting the coupler, disconnect it while holding the coupler body. Pull while holding the wire harness cord and do not remove the coupler connection.



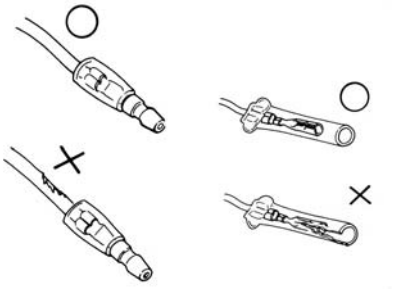
- Insert the lock of the coupler until the lock is fully secured.



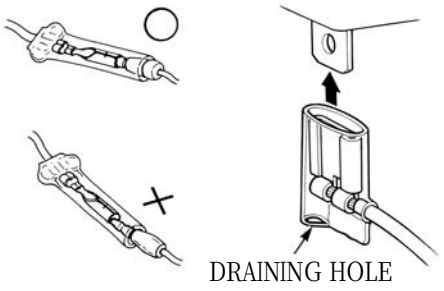
- Pay attention not to damage the vinyl cover of the coupler.



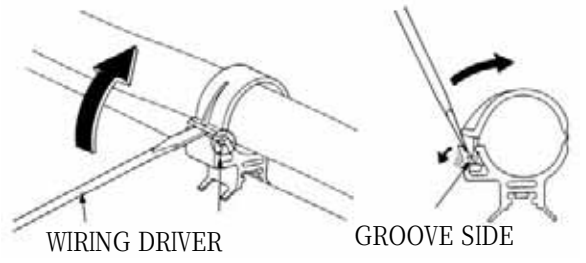
- If the wire harness coating is damaged, repair by winding vinyl tape or replace it.
- Prior to connecting the connector, make sure that the cover is not damaged and the mess terminal is not opened.



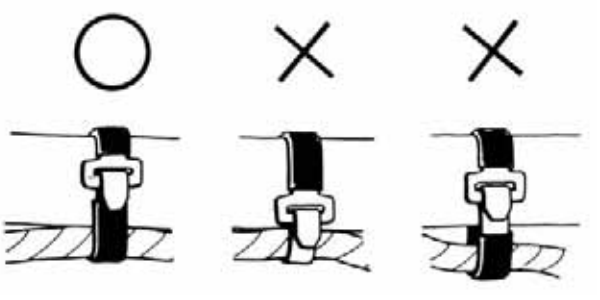
- Insert the connector until the vinyl cover is fully inserted into the terminal.
- The opening of the vinyl cover must face at the ground direction but in case of the plain connector, the draining opening must face at the sky direction.



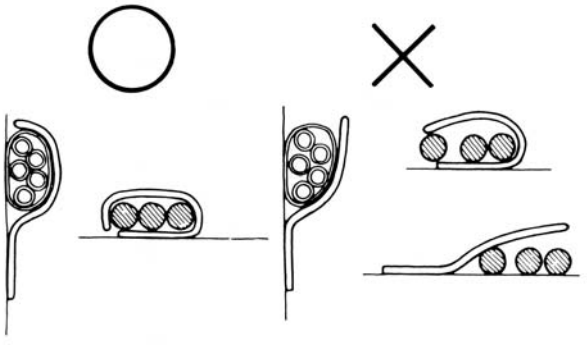
- When removing T-start, broaden the groove of T-start using the wiring driver and release the torque.
- Connect the harness and the hose to T-start and then insert until the groove is locked.
- When removing T-start from the frame, replace it with the new one.



- Wire band must be secured firmly in the specified location of the frame. In case of aluminium band, secure the wire harness to the coated part.

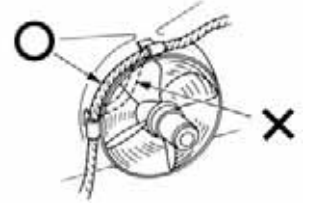


- Secure the wire harness firmly using the clamp.

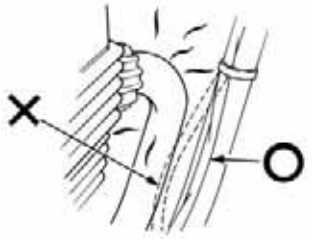


- In case of the weld clamp, do not clamp in the welded part.

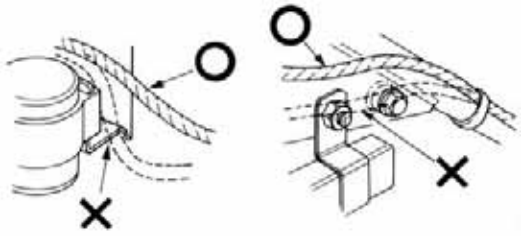
- When clamping the wire harness, make sure that the harness is not contacted with the shaft or rotating part.



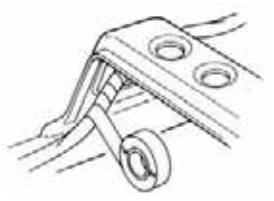
- When clamping the wire, pay attention not to contact with hot part.



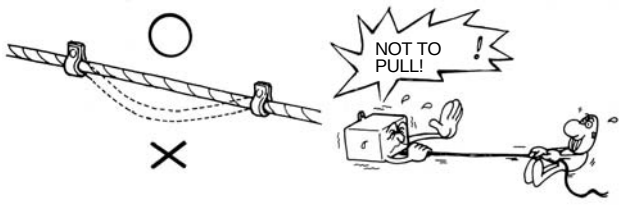
- The wire harness must be routed without contacting with the end of the lamp or any sharp edge.
- The wire harness must be routed without contacting with the end of the bolt or the piece.



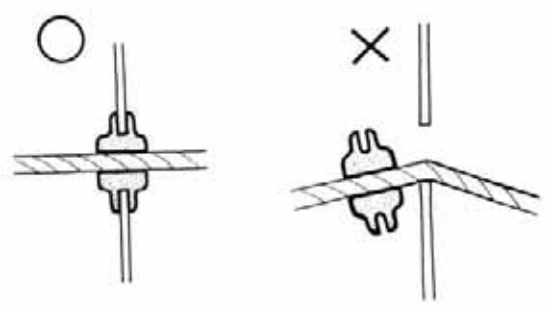
- In case that the wire harness is contacted with the end or the sharp edge, protect both parts with tube or tape.



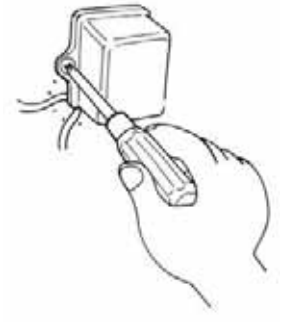
- The wire must not hang down or be pulled excessively.



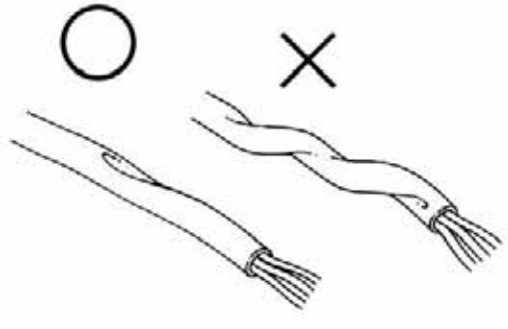
- If necessary, lock the wire harness properly.



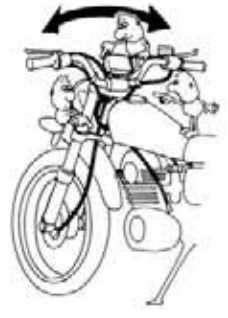
- When mounting parts, make sure that the wire harness is not pressed by the parts.



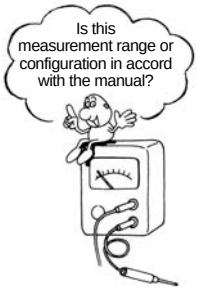
- Do not twist the wire harness.



- Wire the wire harness not to be pulled or expanded when the handle is turned to the right or the left completely. Avoid excessive bending or chewing and interference with the engine.



- Prior to using the tester, please read the manual carefully and understand the contents.
- When testing the resistance of the tester, the zero adjustment must be performed before testing.



- Do not drop or throw the parts especially semiconductor contained parts because these parts may be damaged by the impact of the drop.

MEMO

MEMO

2. INSPECTIONS/ADJUSTMENTS

SERVICE INFORMATION · · · 2-1
MAINTENANCE SCHEDULE · · 2-2
FUEL LINE (FUEL TUBE) · · · 2-3
FUEL LINE FOR CLOGGING · 2-3
THROTTLE GRIP OPERATION · · 2-4
AIR CLEANER · · · · · · · · 2-4
SPARK PLUG · · · · · · · · 2-5
CYLINDER COMPRESSION PRESSURE · 2-6
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SERVICE INFORMATION

WARNING

● The exhaust gas contains poisonous substance. Do not keep engine idling in a closed or poorly ventilated place for a long period of time.

NOTE

• Stand the main stand prior to beginning work.

SPECIFICATIONS

ITEM	STANDARD VALUE	REFERANCE
THROTTLE GRIP PLAY	2- 6mm	
SPARK PLUG	BPR6HS	
SPARK PLUG GAP	0.6-0.7mm	
CARBURETOR IDLE SPEED	2,000rpm	
CYLINDER COMPRESSION PRESSURE	10kgf/㎠ (600rpm)	

TORQUE VALUES

SPARK PLUG	1.4kgf · m
CYLINDER HEAD COVER BOLTS	1.0kgf · m

REGULAR INSPECTION SCHEDULE

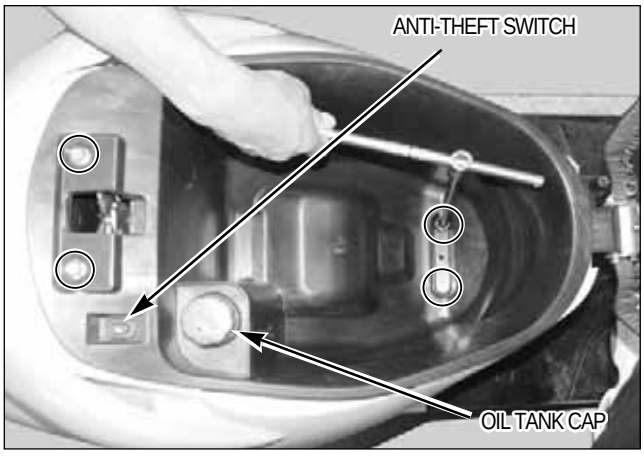
● Carry out pre-operation check at each scheduled maintenance period based on the information described in the owner's manual.
I : INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY.
R : REPLACE L : LUBRICATE C : CLEAN

*	ITEM \ FREQUENCY	ODOMETER READING(NOTE 1) x 1000Km	1	4	8	12	REMARK
		MONTH		6	12	18	
*	FUEL LINE(FUEL TUBE)			I	I	I	
**	THROTTLE GRIP OPERATION		I	I	I	I	
	OIL PUMP, OIL LINE			I	I	I	
	AIR CLEANER			C	C	C	NOTE 2
	SPARK PLUG			I	I	I	
**	CARBON REMOVAL		Every 8,000km : C				
*	CARBURETOR IDLE SPEED		I	I	I	I	
*	TRANSMISSION OIL					R	
	BRAKE SHOE/PAD WEAR		I	I	I	I	NOTE 3
	BRAKE SYSTEM		I	I	I	I	
*	BRAKE STOP SWITCH		I	I	I	I	
*	HEADLIGHT ADJUSTMENT			I	I	I	
**	CLUTCH SHOE WEAR			I	I	I	
*	SUSPENSION			I	I	I	
*	BOLTS, NUTS, FASTENERS		I		I		
**	WHEELS/TIRES		I	I	I	I	
*	STEERING HEAD BEARING		I		I		
*	DRIVE BELT			I	I	I	
*	WEIGHT ROLLER			I	I	I	
**	SLIDE PIECE			I	I	I	
*	DRIVEN FACE				I		
	MOVABLE DRIVE FACE INNER PART			I	I	I	

* If there are no appropriate type of tools and maintenance data available, or if you do not have mechanical technology contact authorized maintenance shops, dealers or other designated repair shops for maintenance and inspections.
** To ensure safety, inspections and maintenance of these parts must be carried out by authorized maintenance shops, dealers or other designated repair shops.

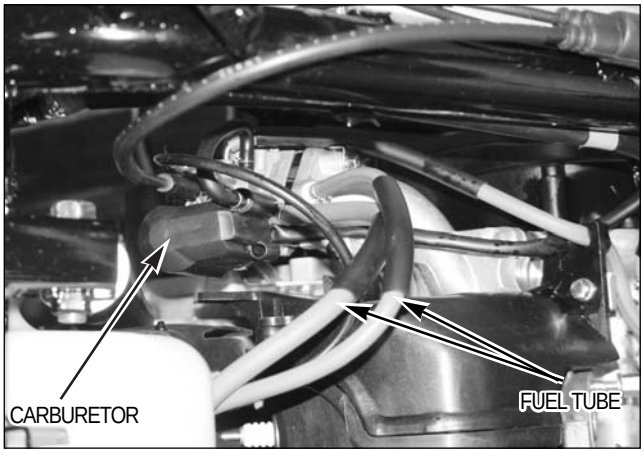
NOTE

1. After the odometer reading exceeds 12,000km, repeat maintenance service at intervals indicated in the table.
2. After riding in areas with high humidity or pollution, carry out maintenance service more frequently.
3. Replace every 2 years. Proper technology is required for this job.



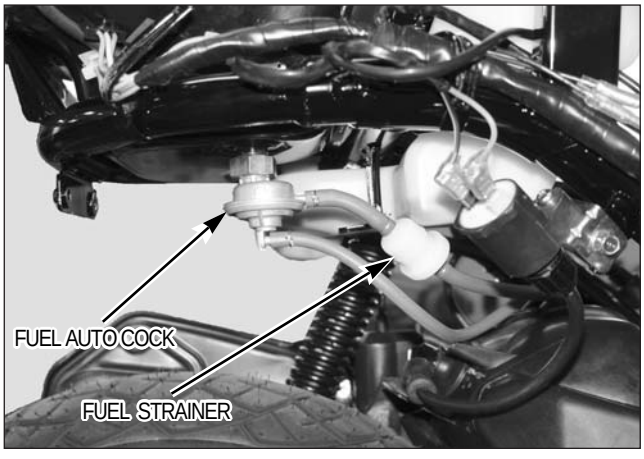
FUEL LINE(FUEL TUBE)

- Remove the luggage box.(⇨3-3)
- Check the fuel tube of the fuel pump connected to the fuel tank and carburetor. If the fuel tube is cracked, damaged or leaks, replace it.



FUEL LINE FOR CLOGGING

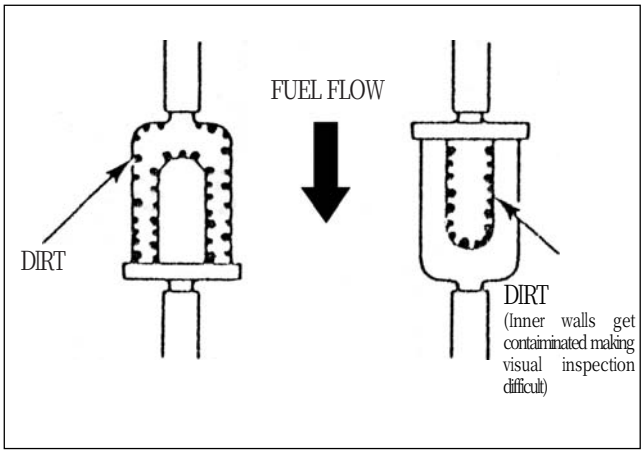
- Check the fuel tank cap and/or fuel tank breather tube for clogging.
- Visually inspect the fuel strainer for contanmination Check the fuel flow with the fuel strainer installed and with the strainer removed.
- Replace the fuel strainer if it is excessively contaminated or if the fuel flow is not smooth.

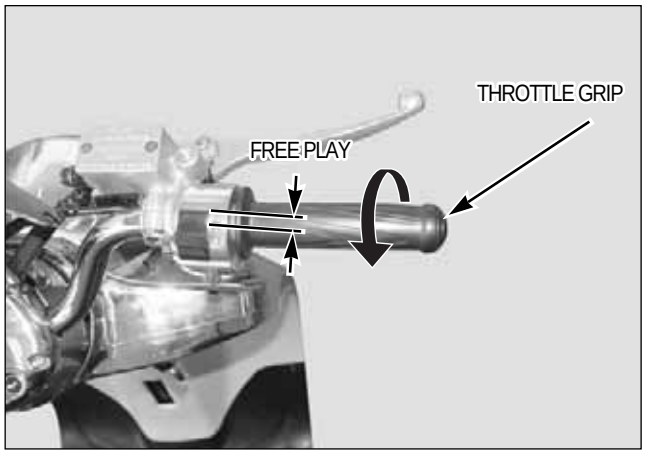


CAUTION

• Note the installation direction of the fuel strainer. Be sure to install it as shown in the drawing, i.e., with the cap facing down. Fuel flows even though the strainer is installed upside down, but it contaminates the inner wall of the strainer and prevents visual inspection of the strainer.

- Remove the fuel valve lock nut and check the fuel strainer screen for contamination. Tighten the lock nut to the specified torque.

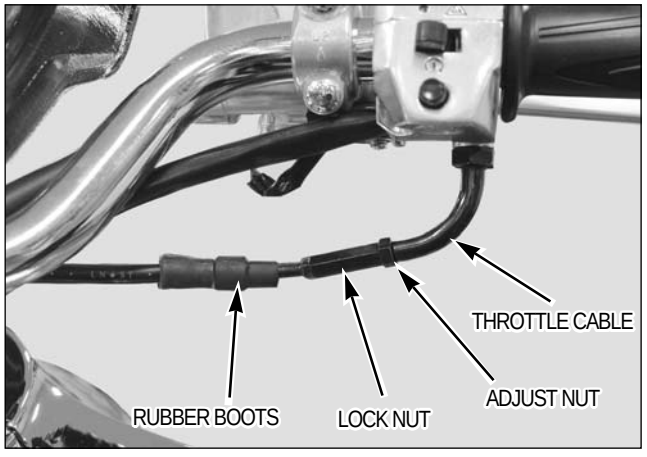




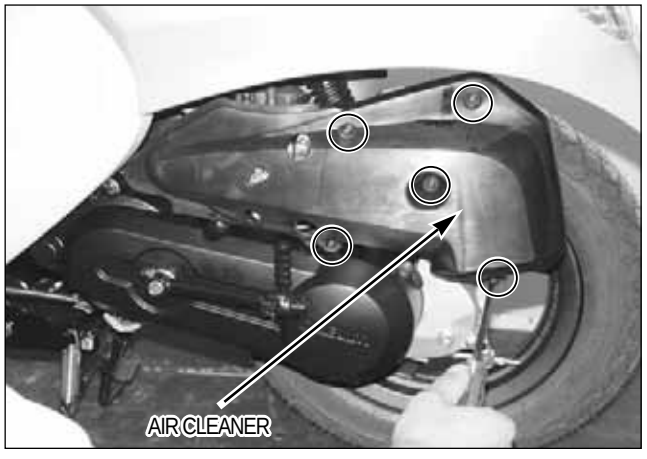
THROTTLE GRIP OPERATION

- Check if the throttle grip operates smoothly in any steering
- Check the plug for damage, contamination or deposits.
- If the spark plug is severely contaminated or damaged, raplace with a new one. If the plug can be reused after removing only the carbon, use plug cleaner and wire brush to clean the plug.
- Always use a feeler gauge to check the gap.

FREE PLAY : 2~6 mm

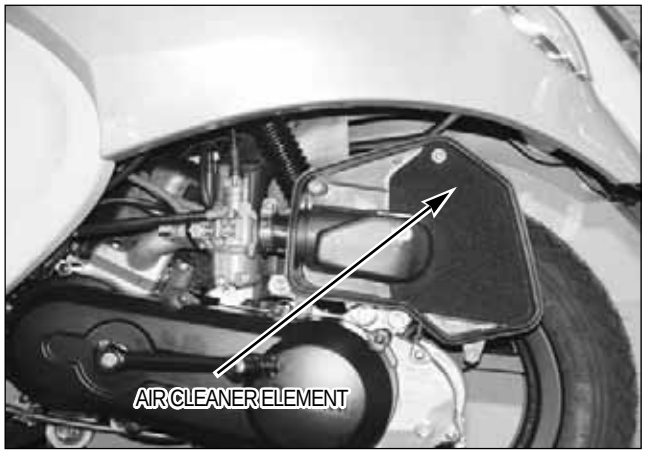


- If the throttle grip doesn't move smoothly, adjust the free play.
- Take off the rubber boots, loosen the lock nut, and turn the adjuster to control the free play.
- After adjusting, tighten the lock nut, check the operation of grip, and then put on the rubber boots.



AIR CLEANER

- Loosen the 5 setting screw assembled to the air cleaner case cover, and then remove the air cleaner case cover..



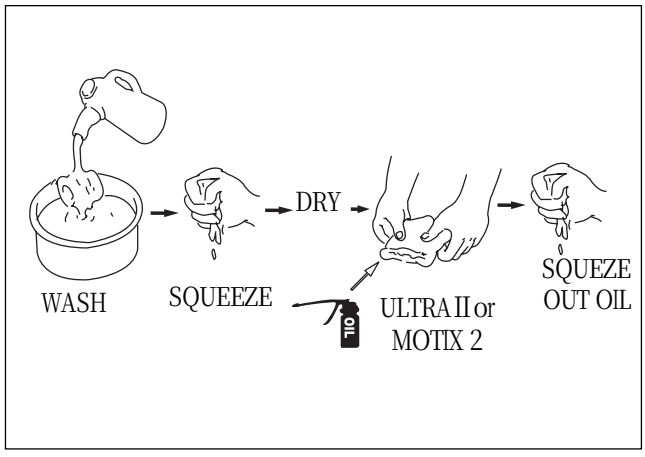
- Remove the air cleaner element.
- Wash away any accumulated dust or dirt, by gently squeezing it in non flammable or high flash point solvent.

WARNING

- Using gasoline or low flash point solvents for cleaning parts may result in a fire or explosion.

CAUTION

- Cleaning the element with gasoline or any acid, alkaline, or organic, volatile type oil may cause improper ignition, deterioration of the element, or a loosening of the element adhesive.



- Be sure to allow the element to dry thoroughly before applying oil. Otherwise, the oil will be diluted by the and the filtering ability of the filter will be much less effective.
- Spread clean #80~90 gear oil on the element, rubbing inthoroughly over the surface with both hands, and then squeeze out any excess oil.

CAUTION

- Using air filter oil when riding in extremely dusty conditions prevents premature engine wear due to dust/dirt drawn into the engine. Apply air filter oil to the entire surface of the element and rub it with both hands to saturate the element with oil. Squeeze out excess oil.

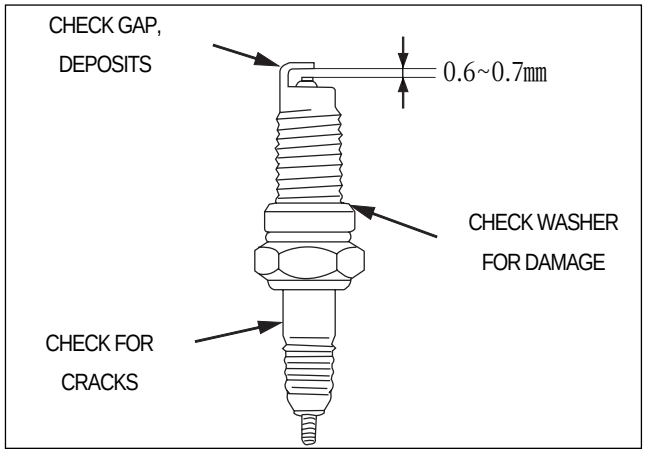
SPARK PLUG

- Remove the plug maintenance cover
- Remove the spark plug cap and disassemble the plug.

.

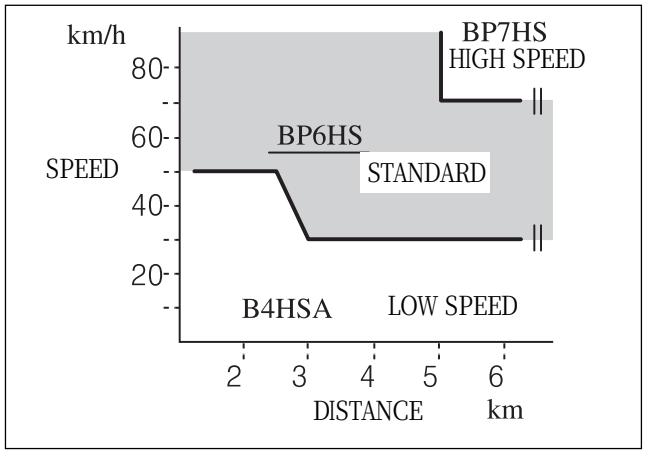
- Check the plug for damage, contamination or deposits.
- If the spark plug is severely contaminated or damaged, raplace with a new one. If the plug can be reused after removing only the carbon, use plug cleaner and wire brush to clean the plug.
- Always use a feeler gauge to check the gap.

SPARK PLUG GAP : 0.6~0.7mm



CAUTION

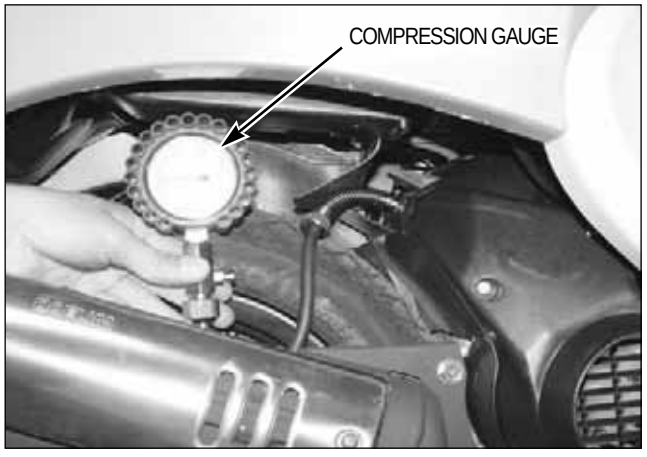
- Make sure there is no dirt or debris on the seat of the spark plug hole before inserting the spark plug.
- To prevent damage to the cylinder head, hand-tighten the spark plug before using a wrench to tighten to the specified torque.
- Do not overtighten the spark plug.

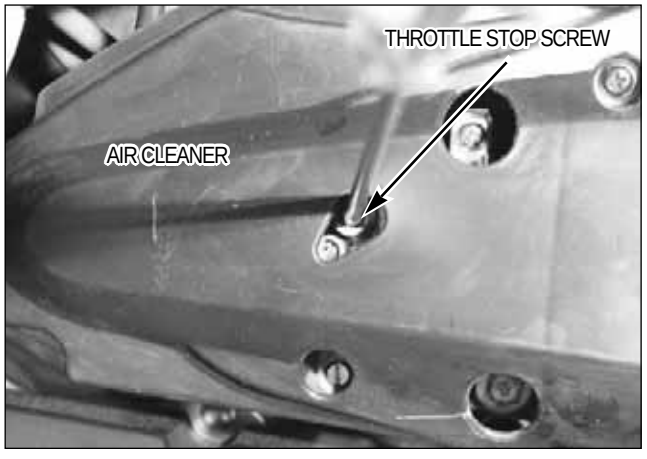


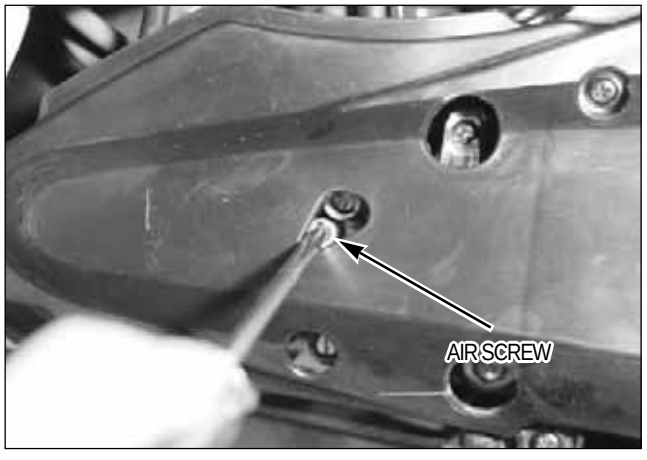
- Spark plug specification change.

HIGH SPEED	STANDARD	LOW SPEED
BPR7HS	BPR6HS	BR4HSA

-The specification changes according to the speed.







CYLINDER COMPRESSION PRESSURE

- Start and warm up the engine.
- Remove the plug maintenance cover.
- Stop engine, and remove the spark plug cap and spark plug.
- Install a compression gauge.
- Open the throttle completely, and crank the engine with the starter motor until the gauge reading rising.

CAUTION

- Fix the vehicle securely.
- Cut off the engine, and lock the high pressure cable.
- While the engine is hot, pay attention not to get burned.

NOTE

- The maximum reading is usually reached within 4~7 seconds.

COMPRESSION PRESSURE : 10 kgf/cm² (600RPM)

- If the pressure is low, check the following:
  -Leakage from the cylinder head gasket.
  -Piston/cylinder worn.
- If pressure is high, check the following:
  -Carbon deposits on the piston head, and cylinder head

TOOL : COMPRESSION GAUGE

CARBURETOR IDLING

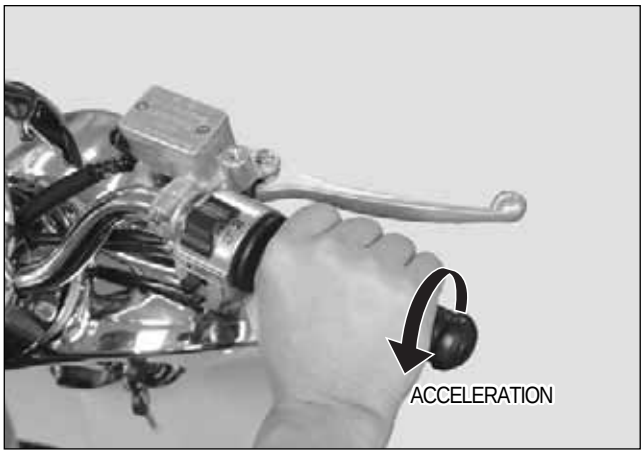
- Stand the vehicle on the main stand.
- Heat the engine to make accurate idling inspection and adjustment.
- Verify all engine adjustments satisfy specifications.
- Turn the throttle stop screw and make sdjustment to prescribed idling speed.

STANDARD RPM : 2,000rpm

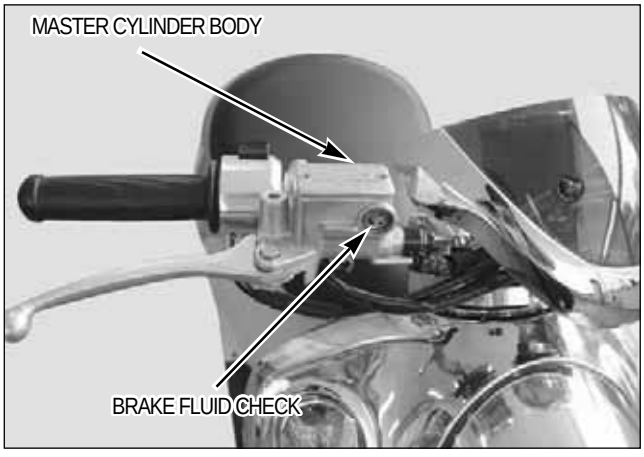
AIR SCREW ADJUSTMENT

NOTE

- The air screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new air screw is installed.
- Tightening the air screw against it is set will damage the seat.



- Turn the air screw clockwise until it seats lightry then back it out to the specification given. This is an initial setting prior to the final air screw adjustment.
- Rev the engine up slightly from the idle apeed and make sure that engine speed rises and returns smoothly.
- Adjust by turning the air screw in or out within a 1.4 turn if necessary. If the engine cannot be adjusted by turning the air screw within a 1/4 turn, check for other engine problems.

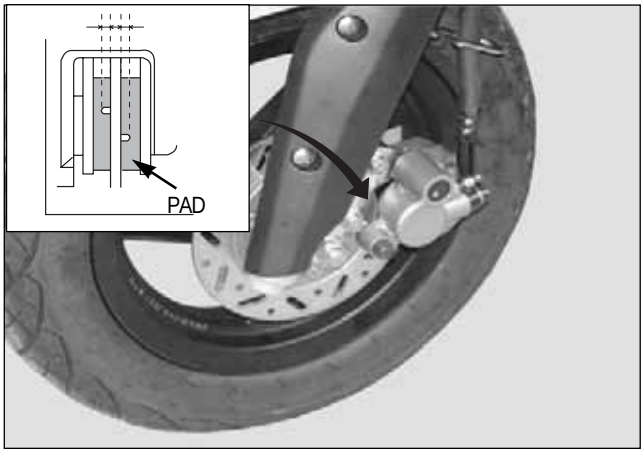


BRAKE FLUID

- Remove the brake fluid cover.
- Check the oil level inside the front reservoirs, if the oil level is near the lower limit line, remove the reservoir diaphragms and fill DOT 3 and DOT 4 brake fluid to the top limit line.
- If the brake fluid reaches the lower limit line, check the entire brake system for leaks.

CAUTION

- Brake fluid will damage painted, plastic or rubber parts.
- Mixing incompatible fluids can impair braking efficiency.
- Foreign materials can clog the system, causing a reduction or complete loss of braking ability.
- A leak in the brake system can lead to reduced braking effiency and possible loss of braking ability.



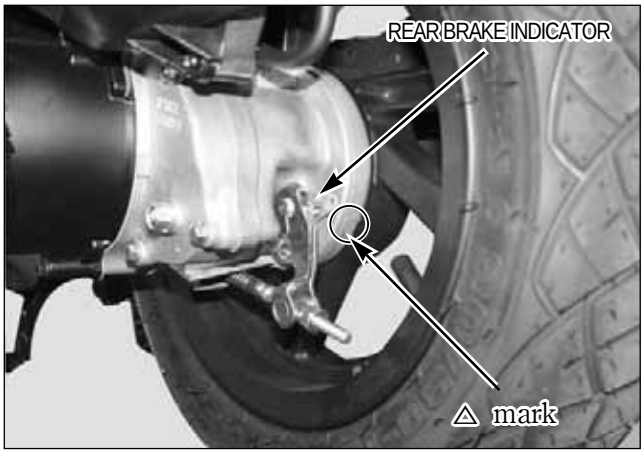
BRAKE PAD/SHOE

BRAKE PAD REPLACEMENT

- Check the brake pads for wear.
- If the red mark on the pad reaches the brake disk, replace the pads.

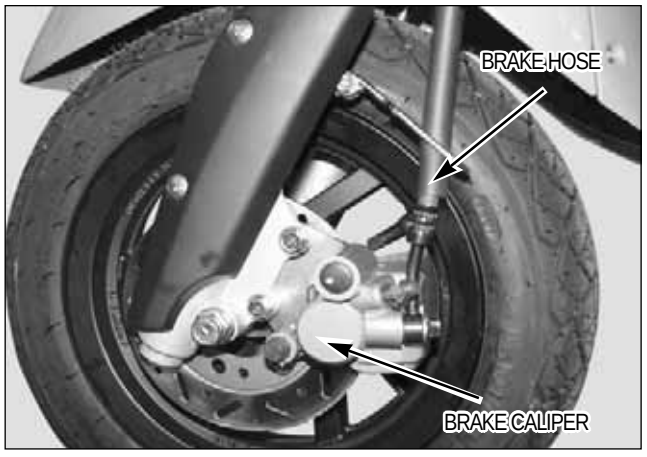
NOTE

- Replace the brake pads as a sets.



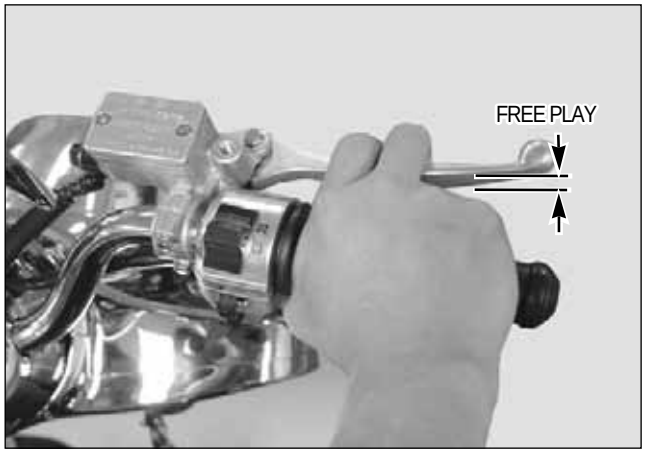
BRAKE SHOE REPLACEMENT

- If the arrow mark of the wear limit aligns with the '△' mark when the parking brake lever is tightly depressed, it indicates the brake lining has reached the service limit. Replace the brake shoes.



BRAKE SYSTEM

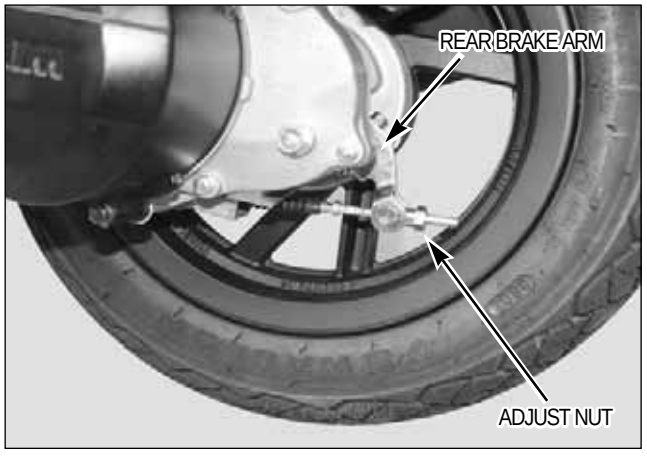
- Check the front brake hose for cracks or damage. If any leaks are found, replace immediately.
- Check the brake rod for looseness or damage, and replase it if necessary.



BRAKE LEVER FREE PLAY

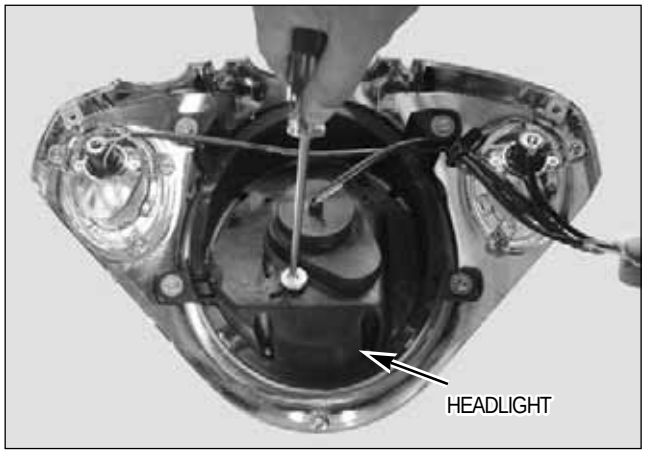
- Check the free play after pulling the lever.

FRONT : 10~20mm
REAR : 10~20mm



REAR BRAKE FREE PLAY ADJUSTMENT

- Turn the adjuster nut to adjust the free play.
- After initial adjustment, Check the operation of the rear brake light switch. Make additional adjustments, if necessary.



HEADLIGHT ADJUSTMENT

- Adjust the headlight beam level by operating the adjusting screw located on the upper side of the front fender.

NOTE

- Adjust the beam level according to local laws and regulations.
- Improper beam level adjustment may blind oncoming drivers, or may incorrectly light the road ahead.

SIDE STAND

- Erect the main stand.
- Pull the lower end of the side stand, and see if it moves freely.
- If the side stand does not move smoothly, apply grease to the pivot area.
- If the side stand moves too freely, check the side stand spring.
- Check the axial movement of the side stand.

SUSPENSION

NOTE

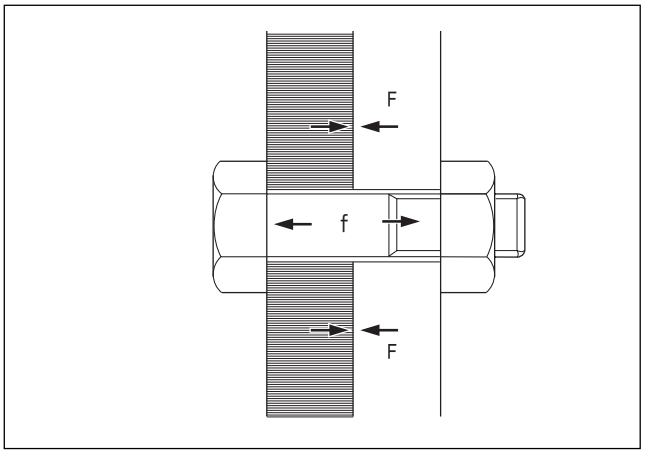
• Do not ride motorcycle with an unsatisfactory suspension. Loose or worn suspension parts will lead to deterioration in the vehicle's safety and operation efficiency.

FRONT WHEEL

- Hold the brake lever, and compress the front cushion up and down several times to check the operating conditions.
- Check the front fork for oil leakage, parts damage or looseness.

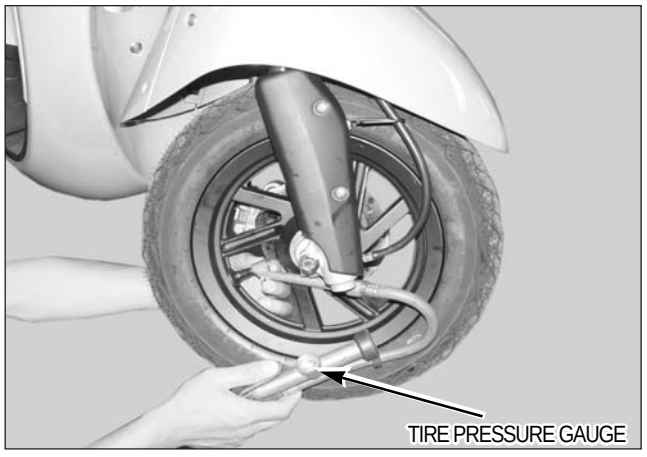
REAR WHEEL

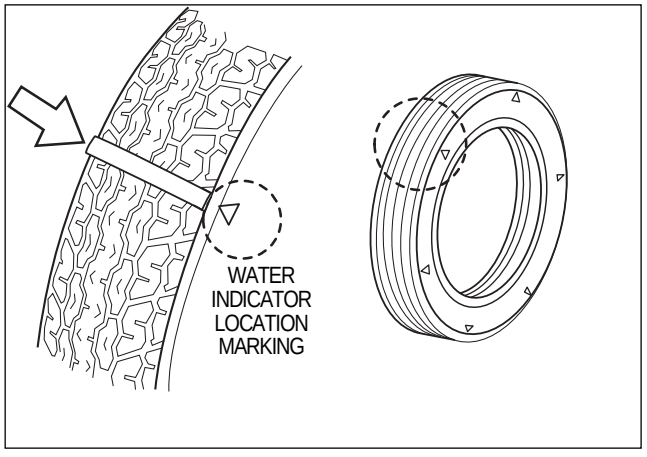
- Compress the near cushion up and down for several times to check the operating conditions.
- Check the rear fork for oil leakage, parts damage or looseness.

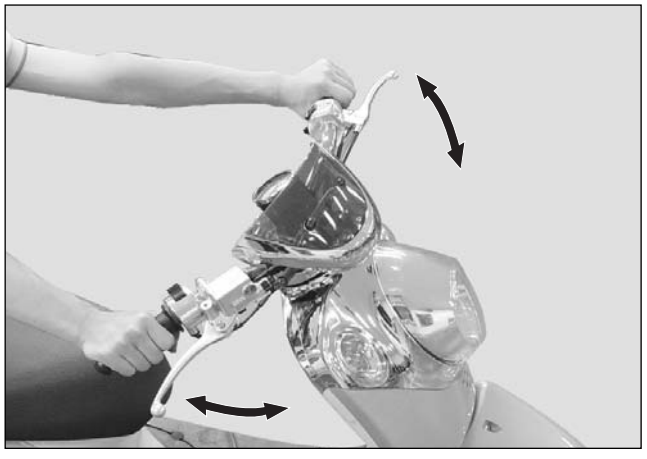


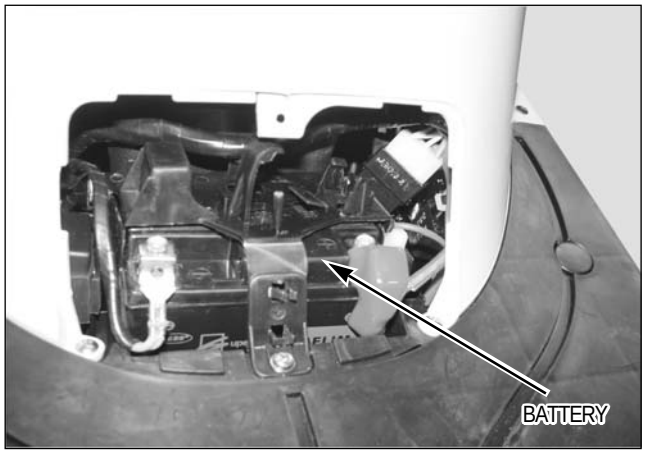
BOLTS/ NUTS FASTENERS

- Check all nuts and bolts of the frame during the regular maintenance to check if they meet the prescribed torque value.
- Check all pins, clips, hose clamps and cable stays.









WHEELS/TIRES

NOTE

- Check the tire pressure when the tires have been cooled off. Check the tread (the part making contact with the road surface) and side for wear, cracks or damage. Replace damaged tires.

STANDARD PRESSURE

kgf/㎠(kpa)

ITEM	FRONT WHEEL	REAR WHEEL
DRIVER ONLY	1.75(175)	2.00(200)
DRIVER AND A PASSENGER	2.00(200)	2.25(225)

- Chec the tread depth at the tire center.
- If the tread depth has reached the service limit, replace the tire.

STEERING HEAD BEARING

NOTE

- Check the cable if it interferes with the handle operation.

- Lift the front wheel and check if the handle moves right and left smoothly. If the handles move heavily, check if the cable or electric cord interferes with the handle. If the handle moves satisfactorily, adjust the steering head bearing.

BATTERY

- Remove the battery cover.
- Check to see if the terminal has loosed.
- If the terminal is loose, check the contact, clean then tighten.
- Apply grease thinly after tightening.
- If the terminal is corroded, remove the battery, pouring the hot water, clean with wire brush.

-Full charging voltage : 13.0~13.2V
-Low charging voltage : Less Than 12.3V

NOTE

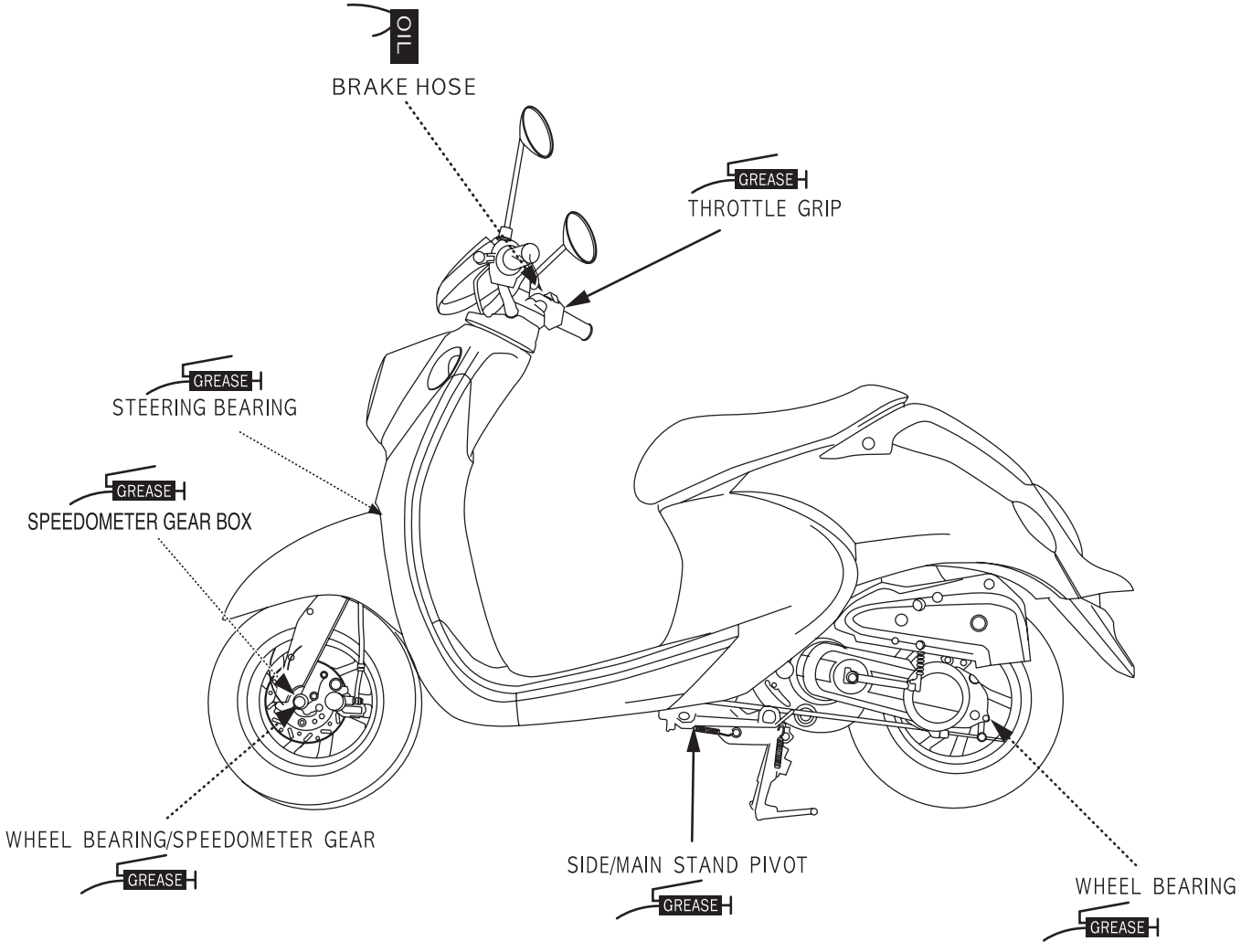
- Check the chaging condition using the voltmeter.
- Pay attention not to transfotm the battery terminal.
- Never remove the filler cap.

LUBRICATION POINTS

Unless specifically designated, use generd grease to lubricate the lubrication points.
For stiding parts not shown here, add oil or grease.

CONTROL CABLE LUBRICATION

Remove and clean the upper assembly of the throttle cable, and apply oil.
If the cable has expanded, replace it.



MEMO

3. EXTERNAL PARTS

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BATTERY MAINTENANCE LID · · 3-3
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BODY COVER · · · · · · · · 3-3
REAR FENDER · · · · · · · 3-4
FLOOR SIDE COVER · · · · · 3-4
FLOOR PANEL · · · · · · · 3-5
FRONT COVER · · · · · · · 3-5
FRONT FENDER · · · · · · · 3-6
INNER COVER · · · · · · · 3-6
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SPEEDOMETER · · · · · · · 3-7
MUFFLER · · · · · · · · · 3-8

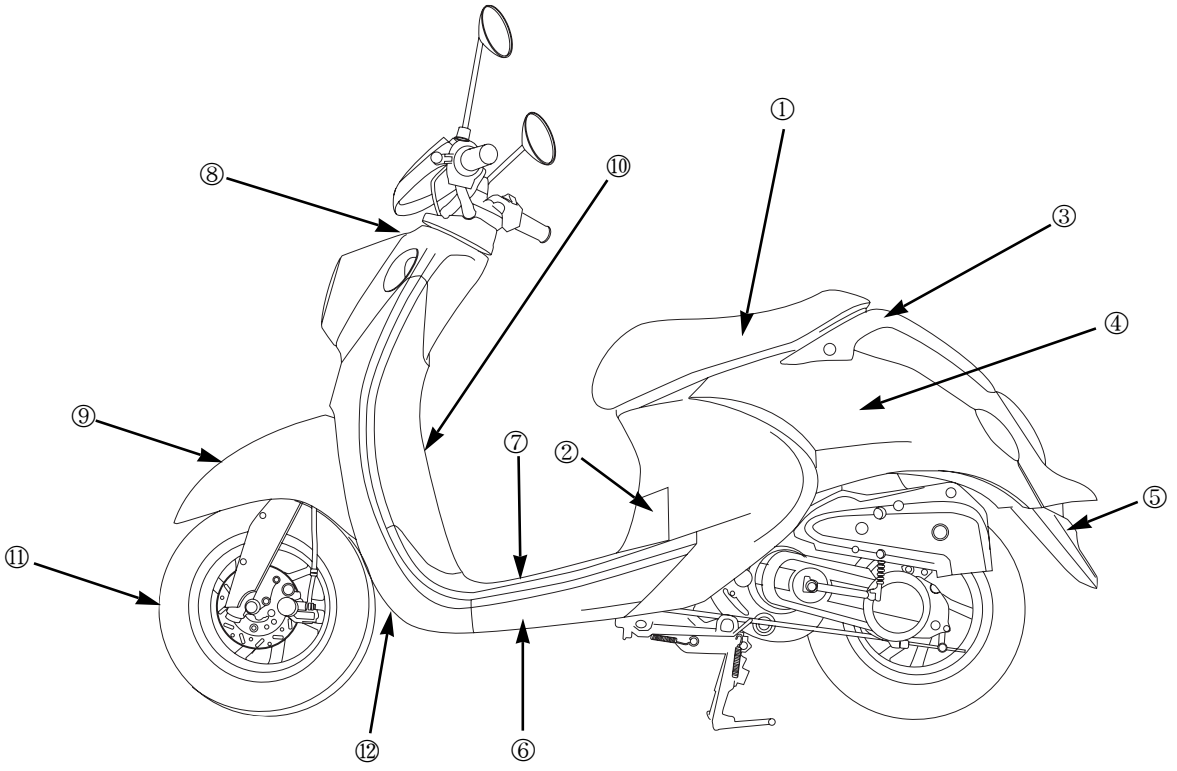
SERVICE INFORMATION

NOTE

- This section describes external parts removal/installation.
- Do not apply unreasonable force when disassembling covers, to prevent possible damage.
- A muffler is hot. Do not service it immediately after the engine is stopped.

MAINTENANCE PROCEDURE

NAME OF FRAME COVERS



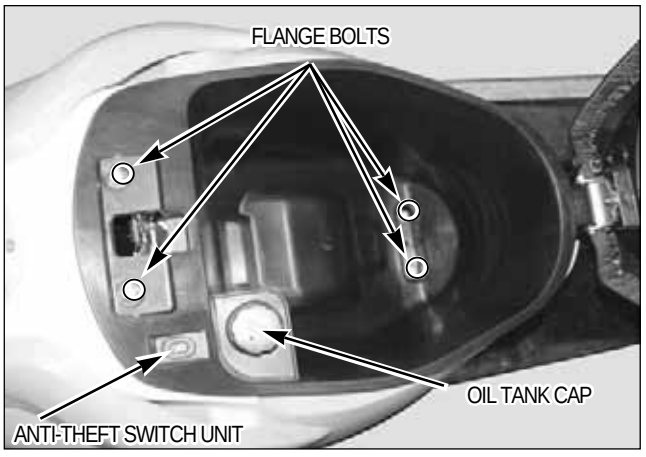
TROUBLESHOOTING

● This chart shows arrows connected in the order of disassembling covers.

① LUGGAGE BOX	⑤ REAR FENDER	⑨ FRONT FENDER
② BATTERY MAINTENANCE LID	⑥ FLOOR SIDE COVER	⑩ INNER COVER
③ REAR GRIP	⑦ FLOOR PANEL	⑪ FRONT WHEEL
④ BODY COVER	⑧ FRONT COVER	⑫ FRONT UNDER COVER

NOTE

• Beware that the scooter does not fall down when you remove the front wheel.



LUGGAGE BOX

- Open the seat and remove the oil tank cap.
- Loosen 4 flange bolts.
- Remove anti-theft switch coupler.

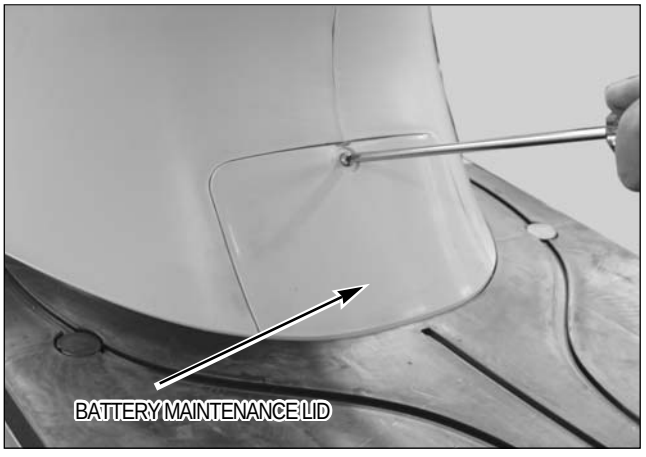
NOTE

• Luggage box can be removed with the seat.

- Remove the luggage box..
- Install in the reverse order of removal.

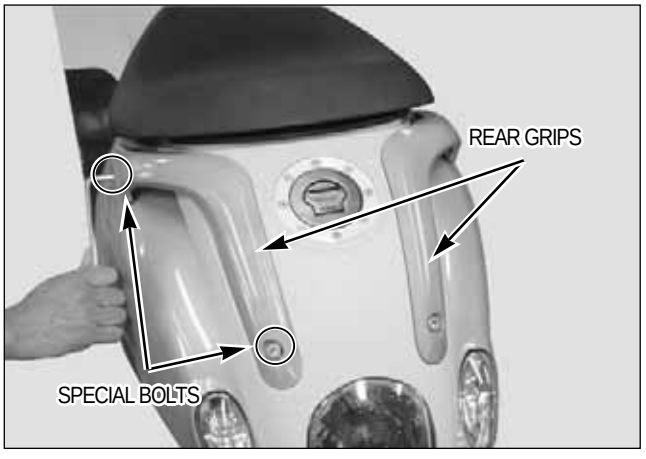
NOTE

• Install the oil tank cap and the fuel tank cap temporarily to prevent the foreign material from entering after removing the luggage box.



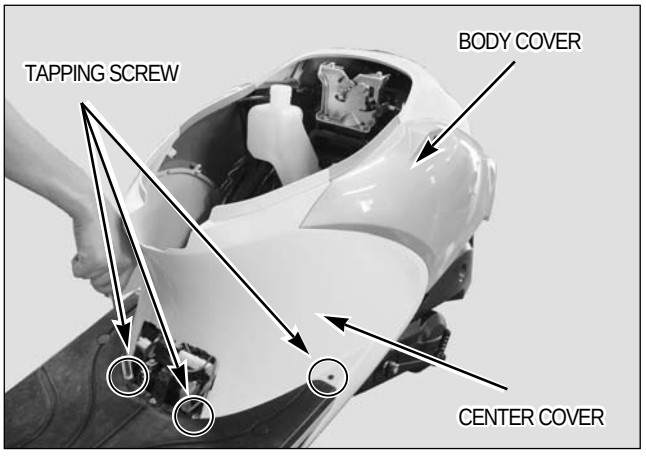
BATTERY MAINTENANCE LID

- Loosen 1 special screw and remove maintenance cover.



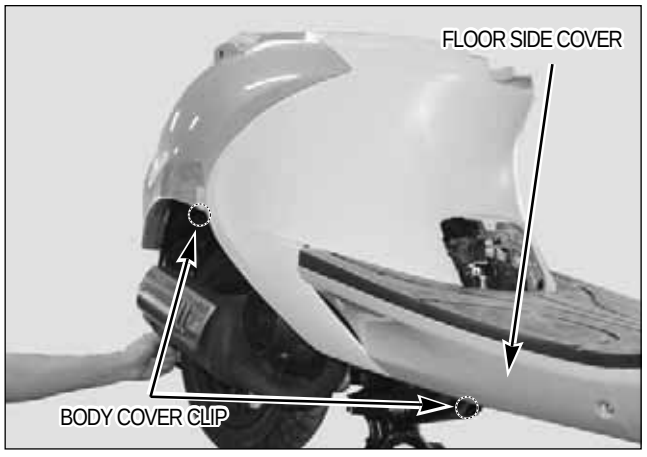
REAR GRIPS

- Loosen 4 special bolts and remove the rear grip.
- Install in the reverse order of removal.

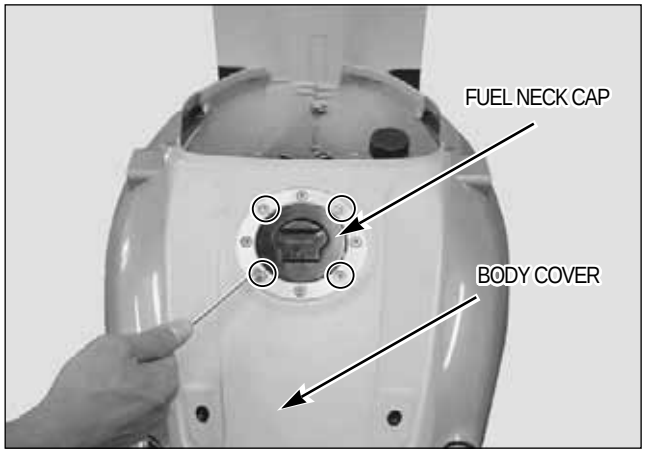


BODY COVER

- Remove the center cover with the body cover.
- Remove the luggage box.(3-3)
- Remove the maintenance lid.
- Remove the rear grips.



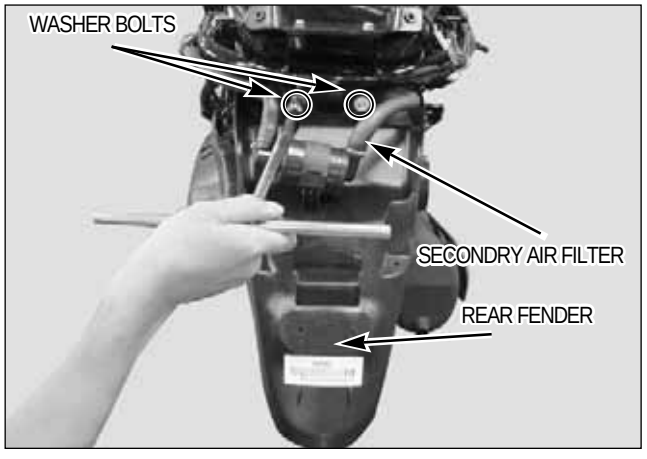
- Loosen 4 tapping screw on the center cover and floor panel.
- Remove 4 the body cover clips. (RH. LH)



COUTION

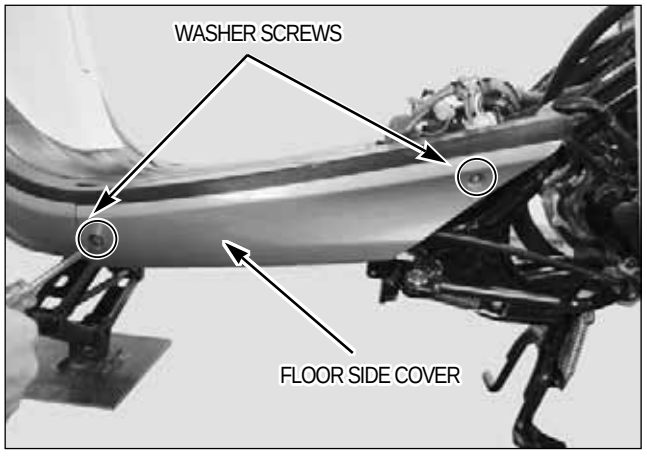
- If removal is difficult, recheck each connection and try removing again.

- Loosen 4 socket bolts on the fuel neck cap and remove the fuel neck cap.
- Remove the tail light, coupler of winker.
- Remove the body cover.
- Install in the reverse order of removal.



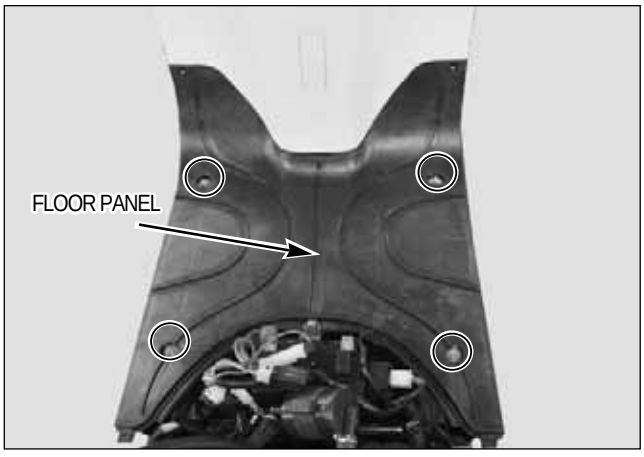
REAR FENDER

- Luggage box.
- Rear grips.
- Body cover.
- Loosen 2 washer bolts on the frame body.
- Remove the secondary in the groove of the rear fender airfilter tube.
- Remove the rear fender.
- Install in the reverse order of removal.



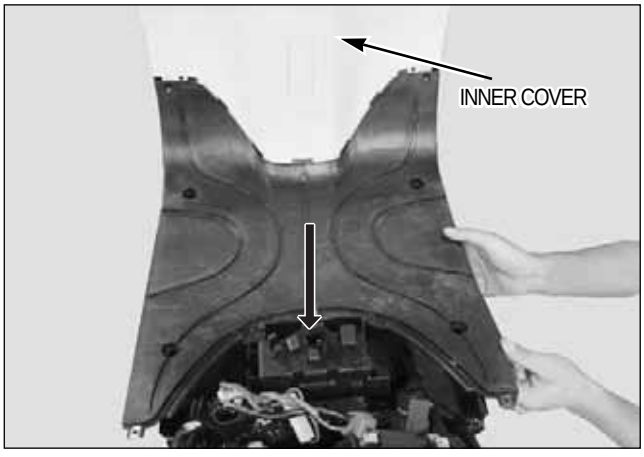
FLOOR SIDE COVER

- Loosen 2 washer screw located in the side of the RH,LH floor side cover.
- Remove the floor side cover.
- Install in the reverse order of removal.

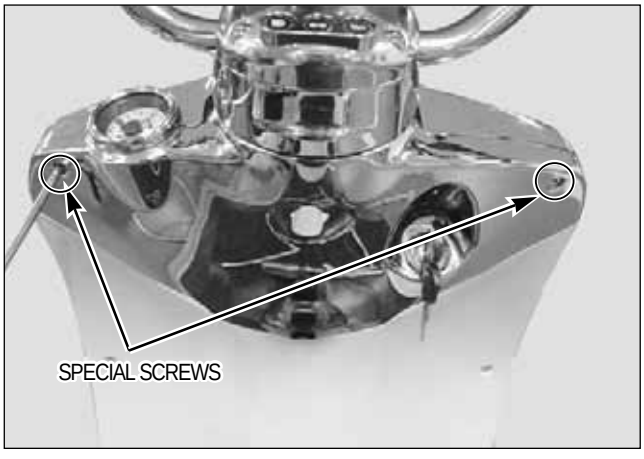


FLOOR PANEL

- Remove the plug maintenance cover.
- Remove the center cover.
- Loosen the tapping screw securing the battery cover to remove the battery cover.
- Disconnect the battery wire to remove the battery and loosen 1 washer bolt.
- Remove the CDI, winker relay coupler, fuse.
- Loosen the 4 washer bolts securing the floor panel.

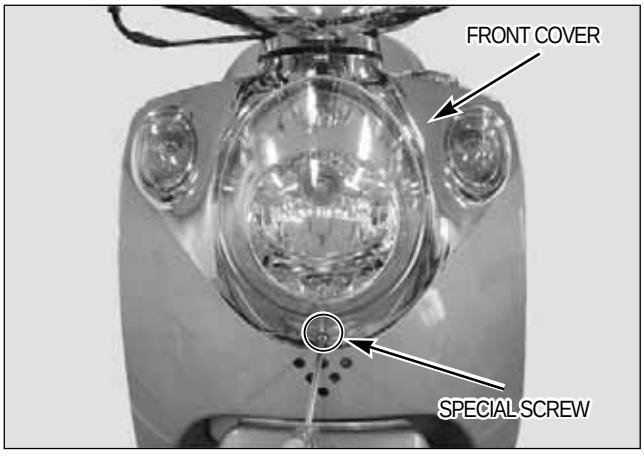


- Remove the floor panel from the connecting groove of the inner box by lifting the rear part of the panel slightly.
- Draw the floor panel moving it to the right and left to remove it.
- Install in the reverse order of removal.



FRONT COVER

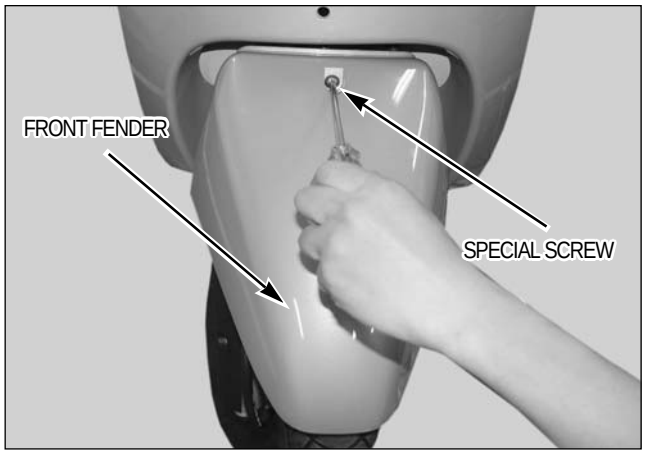
- Loosen 2 special screws (R/L) in the inner cover.



- Loosen a special screw in the front of the front cover
- Draw the upper part of the front cover to remove it
- Disconnect the head light wiring and remove the front cover.
- Install in the reverse order of removal.

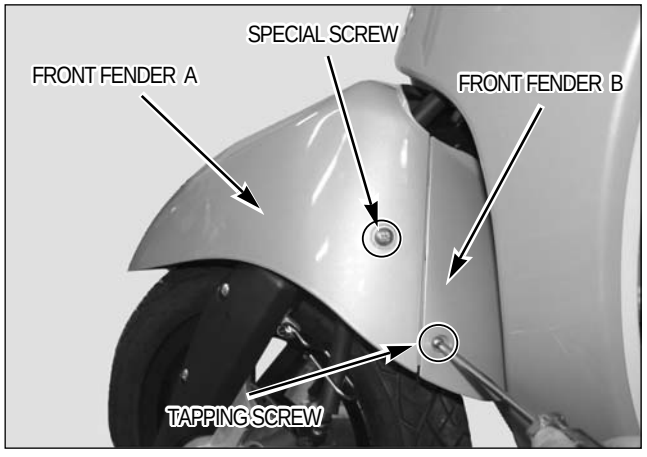
COUTION

• Check for proper alignment of the connection (hook) before performing installation.

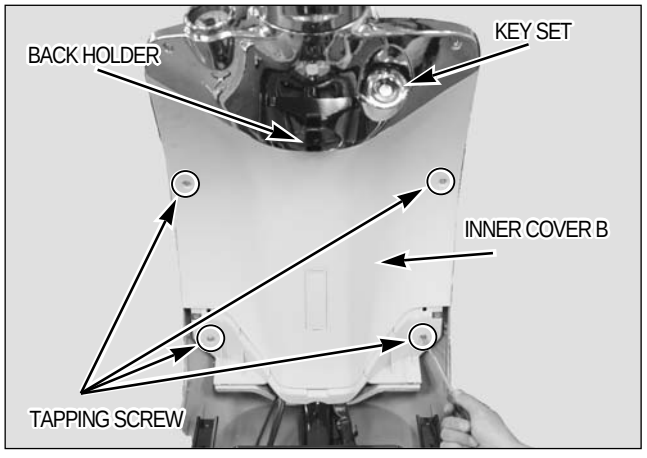


FRONT FENDER

- Loosen the special screw (R/L) securing the front fork.
- Loosen the 2 tapping screws securing the front fender B.

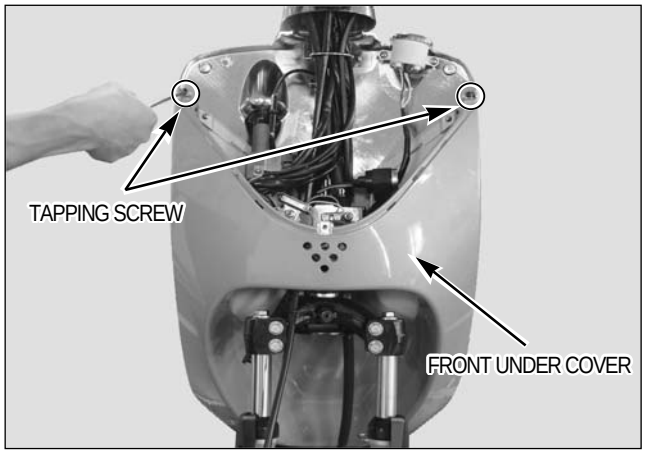


- Remove the front fender B from the front fender A.
- Remove the front fender A.
- Install in the reverse order of removal.

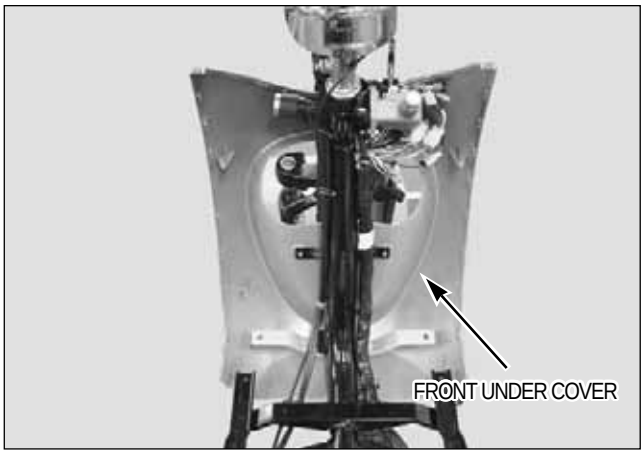


INNER COVER

- Remove the luggage box.
- Remove the body cover.
- Remove the floor side cover.
- Remove the floor panel.
- Remove the front cover
- Loosen the 4 tapping screws (R/L) securing the inner cover.
- Loosen the 1 set screw securing bag holder.

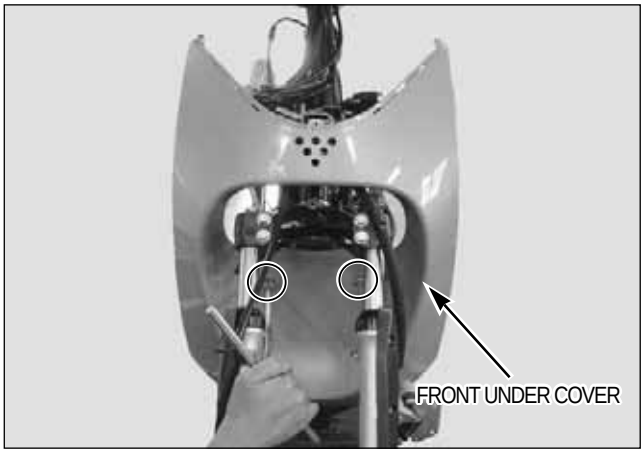


- Loosen the 2 tapping screws (R/L) securing the front cover.
- Remove the inner cover.
- Install in the reverse order of removal.



FRONT UNDER COVER

- Remove the following parts.
  -Luggage box
  -Body cover
  -Floor side cover
  -Floor panel
  -Front cover
  -Inner cover
  -Front fender
  -Front wheel
- Loosen the flange bolts securing the lower end of the inner cover.
- Remove the front under cover.
- Install in the reverse order of removal.

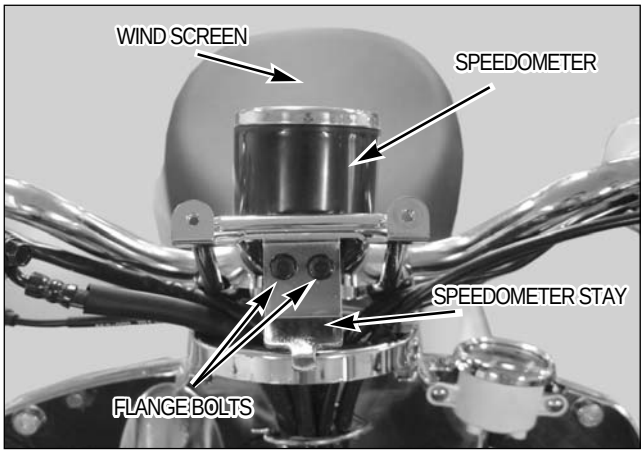


NOTE

• Pay attention not to turn over the vehicle.

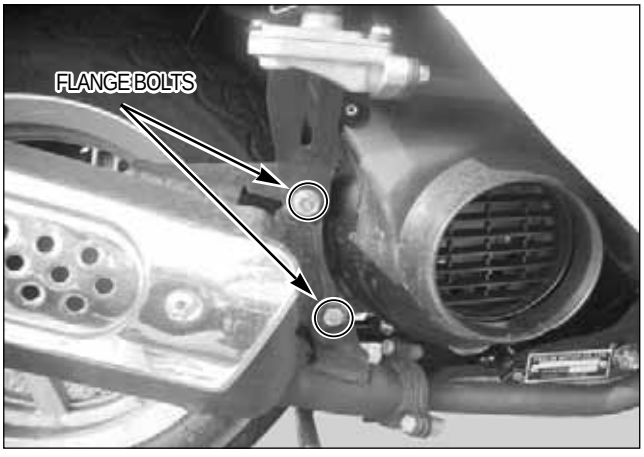
SPEEDOMETER

- Loosen the 2 special screws securing the wind screen.
- Remove the wind screen.



- Loosen the 2 flange bolts securing the speedometer stay.
- Remove the front cover.
- Remove the speedometer wire.
- Remove the speedometer cable.

- Remove the speedometer.
- Install in the reverse order of removal.

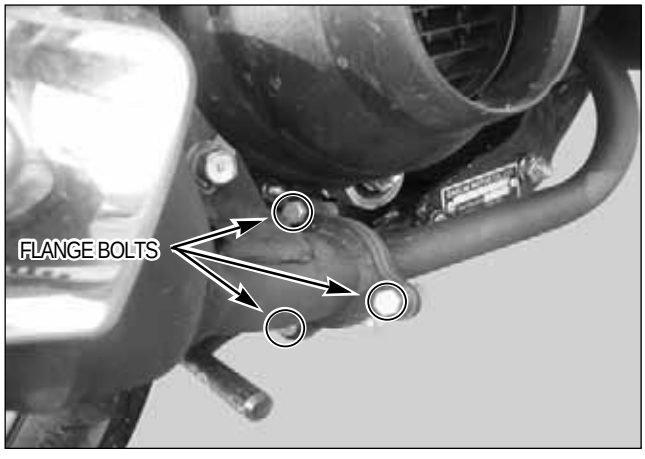


MUFFLER

- Loosen the muffler flange bolt securing Ex. pipe comp.
- Loosen the 2 bolts securing the muffler comp.
- Remove the Ex. muffler comp.

WARNING

• Never performing the maintenance of the muffler right after stopping the vehicle because the muffler is extremely hot.

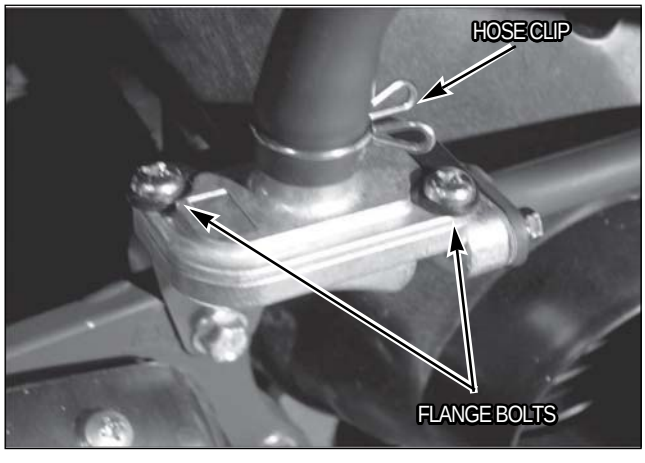


EX. PIPE

- Loosen the 2 cap nuts securing the cylinder comp.
- Pull the Ex. pipe comp, downward to remove it.
- Install in the reverse order of removal.

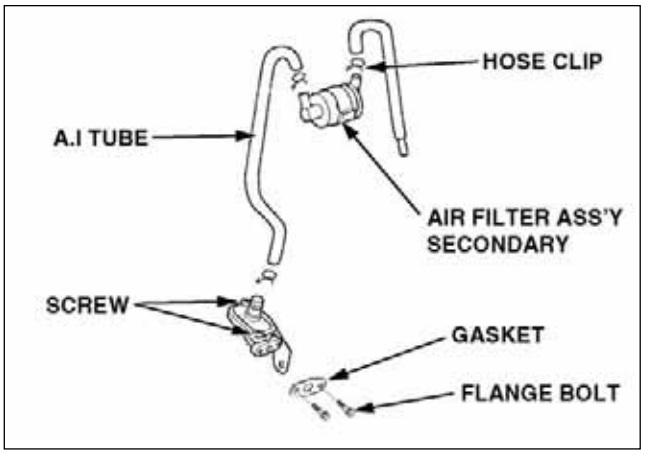
NOTE

• Replace the packing when assemblying the muffler and Ex. pipe comp.



S.A.I PIPE

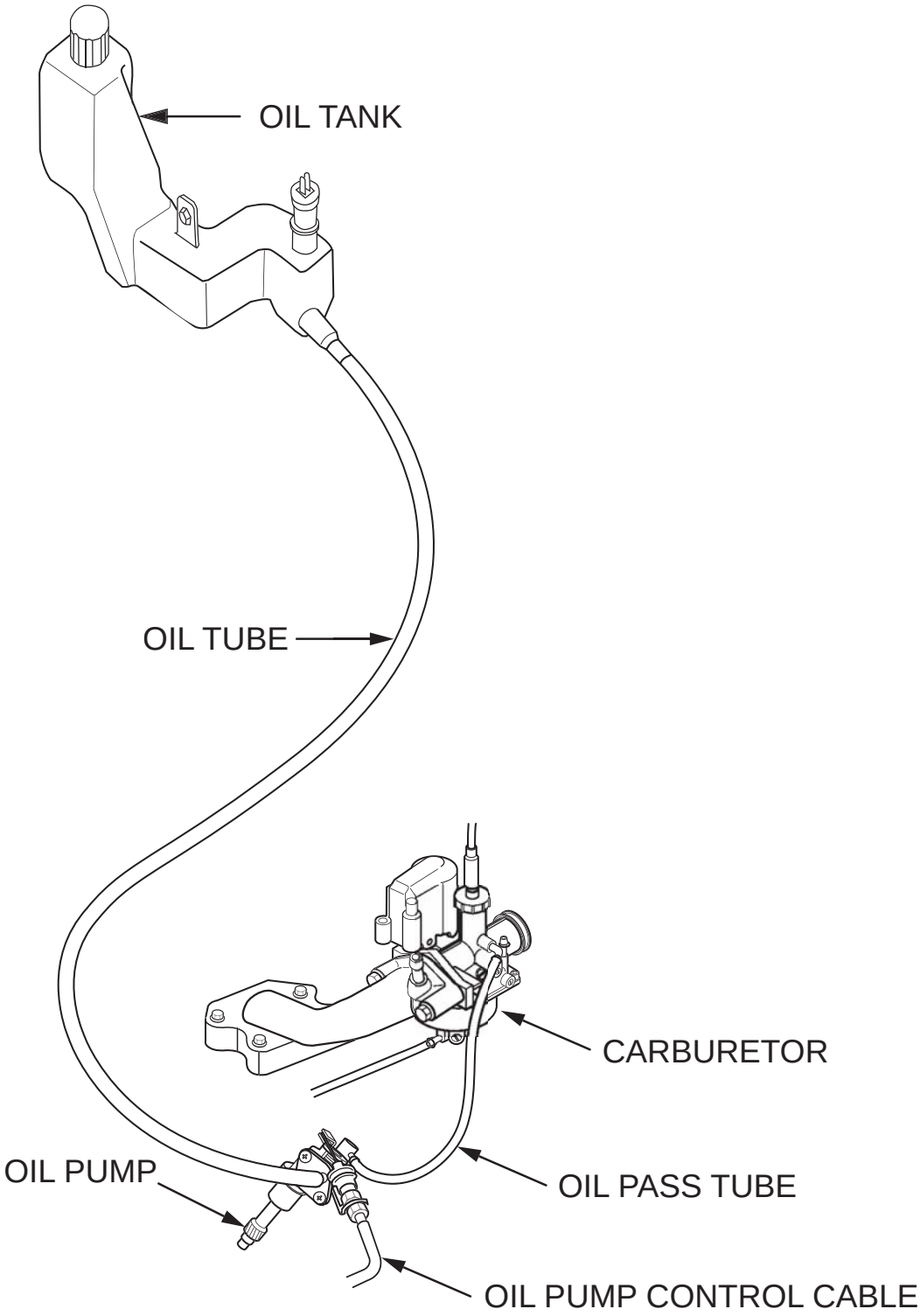
- Remove 2 flange bolts securing the exhaust muffler ass'y.
- Remove the upper flange bolt securing the muffler comp.
- Remove the hose clip and tube.
- Install in the reverse order of removal.



AIR FILTER ASS'Y SECONDARY

- Remove the seat.
- Remove the luggage box.
- Remove the hose clip and tube.
- Install in the reverse order of removal.

OIL SYSTEM DRAWING



4. LUBRICATION SYSTEM

SERVICE INFORMATION · · · 4-1	OIL PUMP BLEEDING · · · · · · 4-3
TROUBLE SHOOTING · · · 4-1	ENGINE OIL LEVEL INSPECTION · · 4-5
OIL PUMP DISASSEMBLY/ASSEMBLY · 4-2	OIL TANK DISASSEMBLY · · · 4-6
OIL PUMP ADJUSTMENT · · · 4-3	TRANSMISSION OIL INSPECTION · · 4-6

SERVICE INFORMATION

CAUTION

• Remove air from oil tube and oil pump if the oil tube is taken off or if air enters the oil tube.

- If the oil tube is disassembled, remove the air in the oil pass tube.
- Maintenance on the oil pump is done without the engine being removed from the vehicle.
- when disassembling the oil pump, do not allow foreign substances from entering the engine or oil pump.
- Do not disassemble the oil pump assembly.
- If the oil tube is disassembled, place a tube clip or band on the oil tube to prevent oil from leaking out.

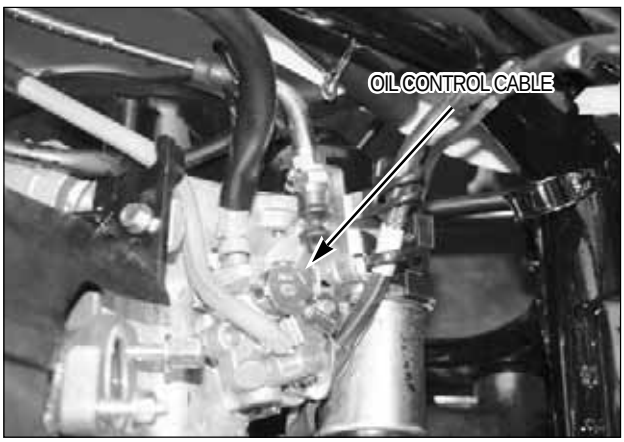
TROUBLE SHOOTING

Overheating or engine clogging

- Faulty adjustment of oil pump(insufficient amount pumped).
- Bad quality of engine oil.
- Engine oil not being injected or blocked, bent strainer screen or oil tube.
- Entering of air in oil tube system.
- Faulty oil pump.
- Engine oil not being supplied from oil tank.
  -Blocked oil tank cap air hole
  -Blocked oil strainer screen

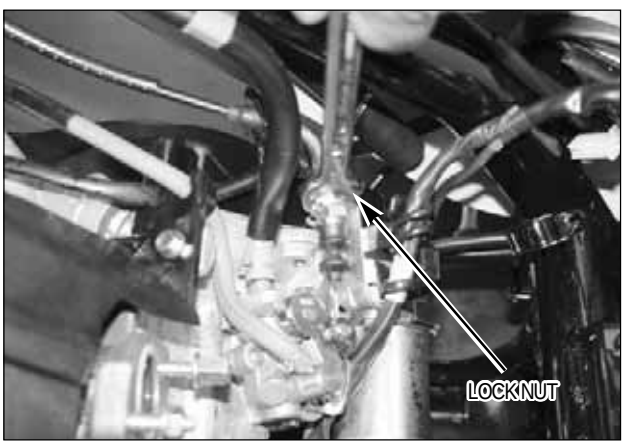
Excess exhaust smoke, accumulation of carbon on spark plug

- Faulty adjustment of oil pump(over-pumped amount).
- Bad quality of engine oil.

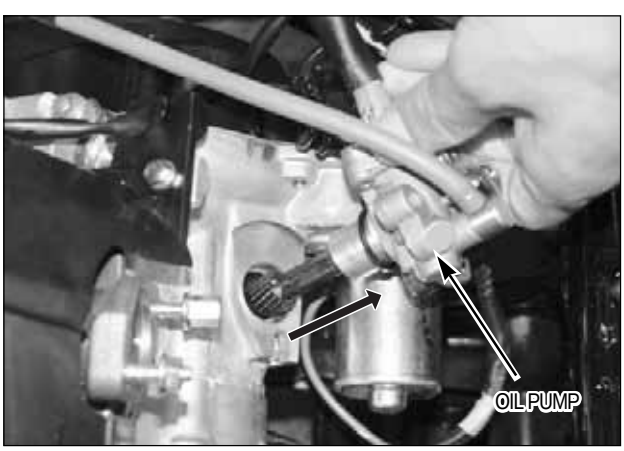


OIL PUMP DISASSEMBLY / ASSEMBLY

- Remove the luggage box.
- Remove the air cleaner.

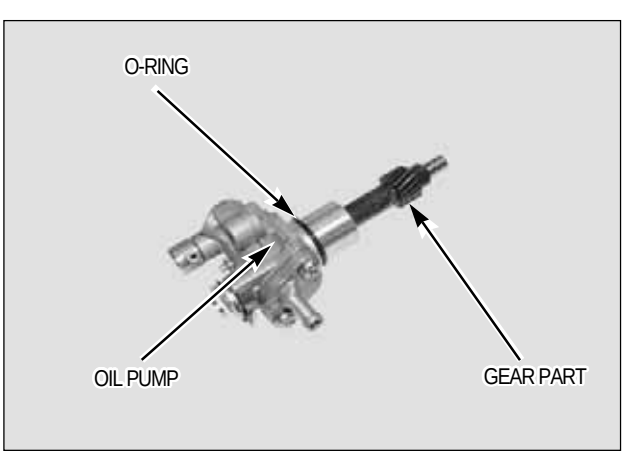


- Remove the 2 bolts of oil pump cable stay.
- Remove oil tube on the side of oil pump.
- Remove oil pass tube.
- Remove setting plate of oil pump.
- Remove oil pump.
- Install in the reverse order of removal.



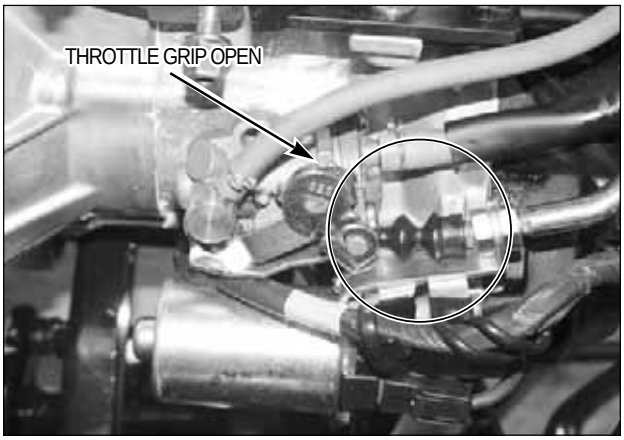
CAUTION

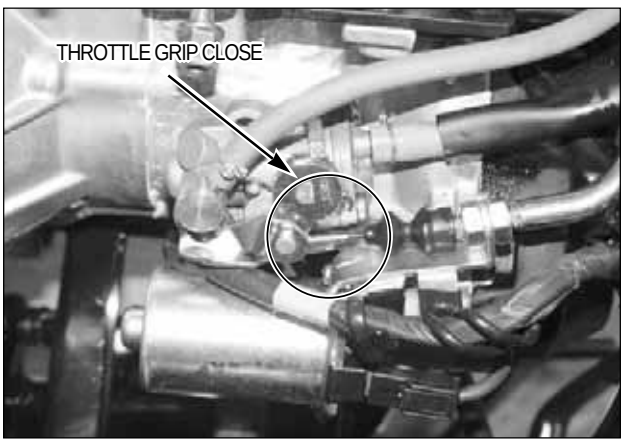
- When assembling/disassembling the oil pump, do not allow foreign substances from entering the engine and oil tube by cleaning around the oil pump.
- If the air enters into the oil line, it may cause faulty lubrication or engine sticking, Always remove the qir in the oil line after maintenance.
- Pay attention not to damage the O-ring when assembling the oil pump.

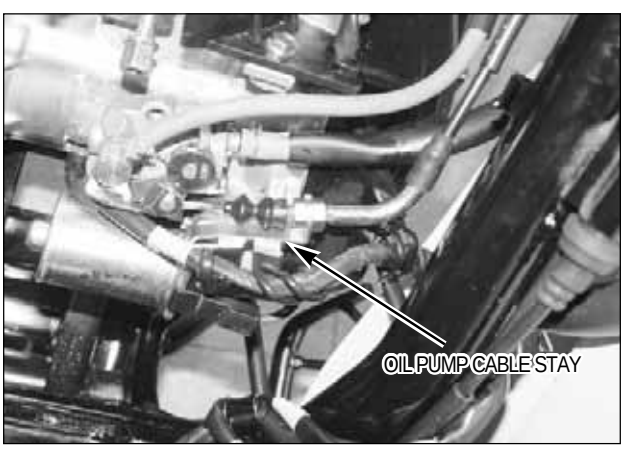


OIL PUMP INSPECTION

- Rotate the shaft and check for proper rotation.
- Check the gear for wear, damage and leak of each seal.
- If the oil comes out from the outlet of the oil pump after connecting the oil tube(which is connecting between the tank and the oil pump) to the inlet and rotating the shaft in the driving direction, consider the oil pump is in good condition.







OIL PUMP ADJUSTMENT

CAUTION

- Perform after inspection and adjustment of throttle cable.

- Check to see if the matching mark of the oil pump body and control lever are aligned in a state where the throttle grip is completely rotated.
- Adjustment is performed by loosening the oil pump control cable lock nut and turning the control nut.
- While the engine is running, slightly open the throttle and check to see if the control lever operates together with the increase in engine rpms.

CAUTION

- Do not adjust the control lever matching mark to the closed side of the oil pump body matching mark. If this is done, the amount of pumped oil is reduced, negatively affecting the engine.
- Make sure that the open axis stays within an 1mm sphere.

- The following occurs when the oil pump is adjusted incorrectly.
  -When the oil pump lever is excessively opened:
  Emitting of white exhaust gas or starting problems.
  -When the oil pump lever is insufficiently opened:
  Clogging of engine.

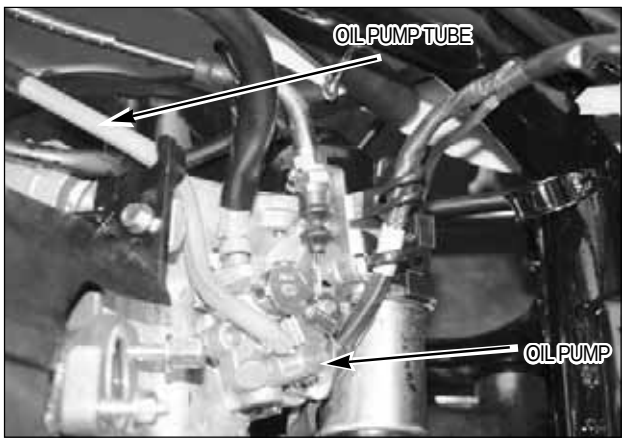
NOTE

- If the oil pump cable stay bolt is removed, apply the screw locking compound to the bolt thread.

OIL PUMP BLEEDING

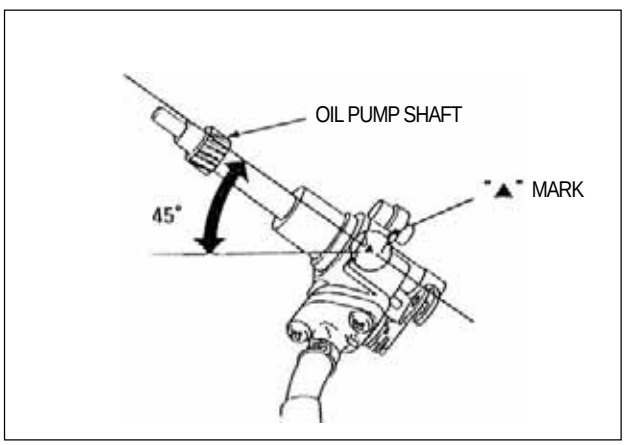
CAUTION

- Air infiltration in the oil pass may cause the engine sticking. Always remove the air in the oil pass after maintenance.
- When disassembling the oil tube, air can be enter into the oil tube and the oil pump because of the oil leaking in the oil tube. Remove the air completely.
- Do not allow foreign substances from entering the oil pass.

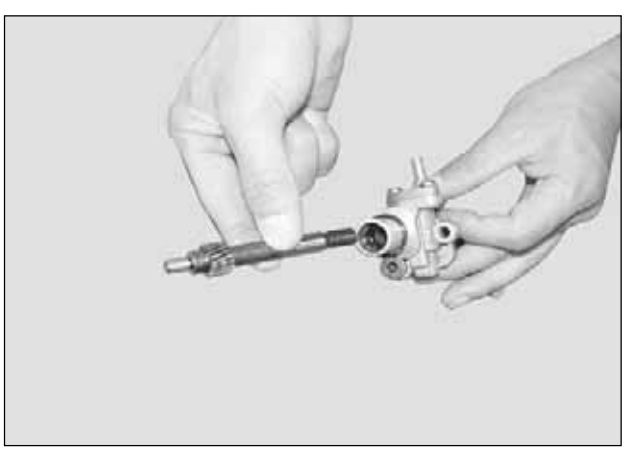


OIL PUMP / OIL TUBE

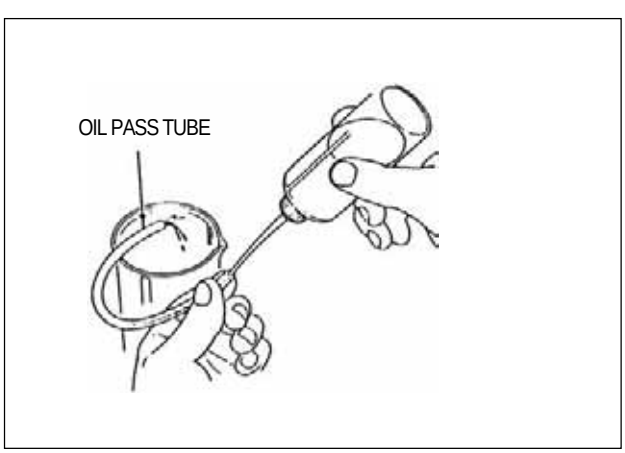
- Fill the oil tank with engine oil.
- Cap around the oil pump and the carburetor with dry cloth.
- Locate the end of the oil tube in the level lower than the oil tank and drain the oil to bleed the air.
- Install the oil tube in the oil pump.



- Incline the oil pump to locate the oil pump shaft at the angle of 45° from the "▲" mark with oil tube connected.

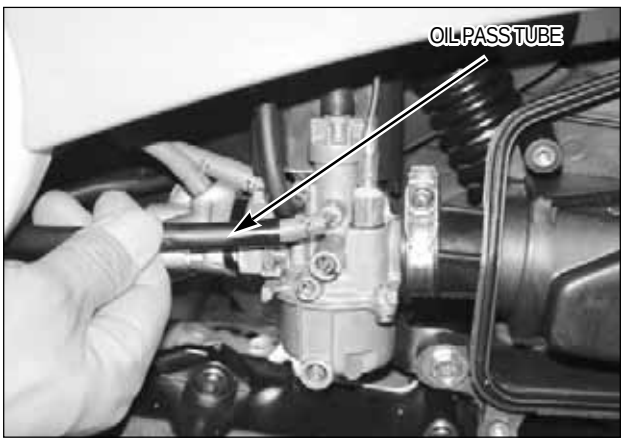


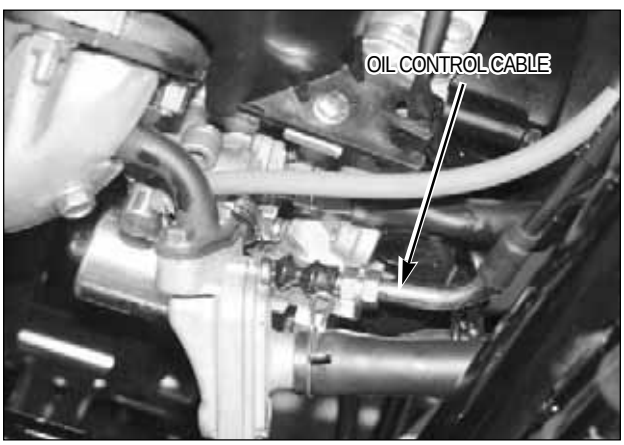
- In this state, locate the oil pump in the level lower than the oil tank and drain the oil to bleed the air.
- Install the oil pump shaft in the oil pump after completing the bleeding.
- Install the oil pump in the crankcase.

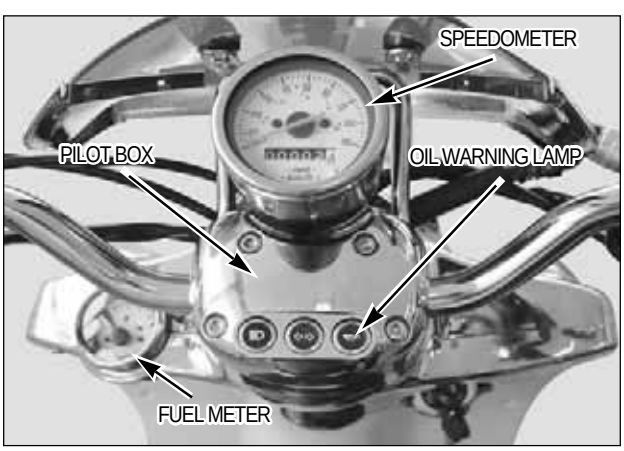


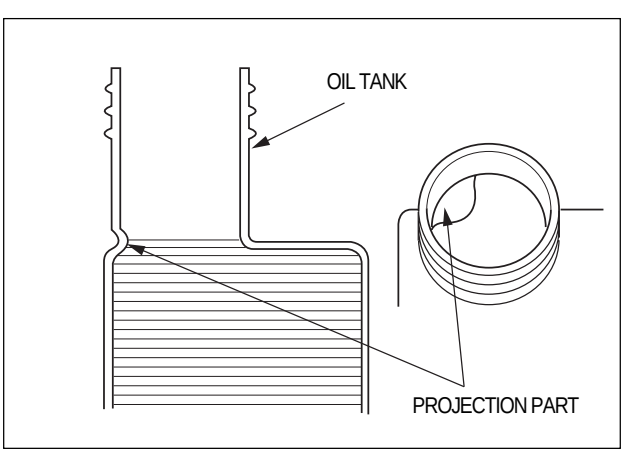
OIL PASS TUBE

- Bend the oil pass tube in the "U"shape, keep the two ends parallel with each other and fill the oil oass tube with the oil.









● Connect the oil pump and then the carburetor quickly with the both ends of the tube pressed to avoid the air from entering.

NOTE

• Make sure that the tubes are arranged correctly.

● Start the engine.

NOTE

• Do not start the engine in the poorly-ventilated ares.

● Open the oil pump control level fully and idle for 2minutes to bleed the air remained in the oil pass tube with the oil drained from the pump.

NOTE

• Do not increase the engine RPM more than required.

● Connect the oil control cable.

NOTE

• Adjust the oil pump if the adjustment nut of the oil control lever is loose.

ENGINE OIL LEVEL INSPECTION

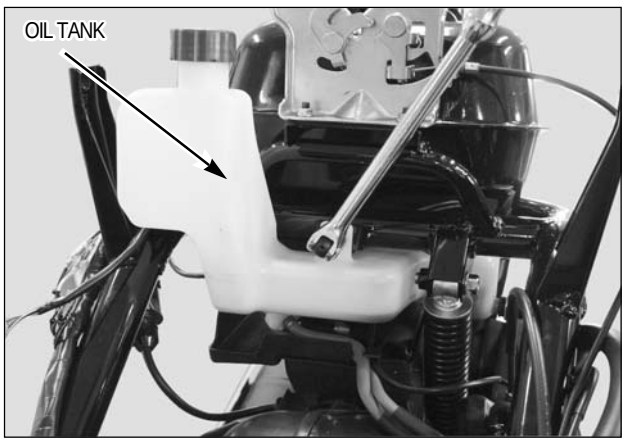
● Check to see if the matching mark of the oil pump body and control lever are aligned in a state where the throttle grip is completely rotated.

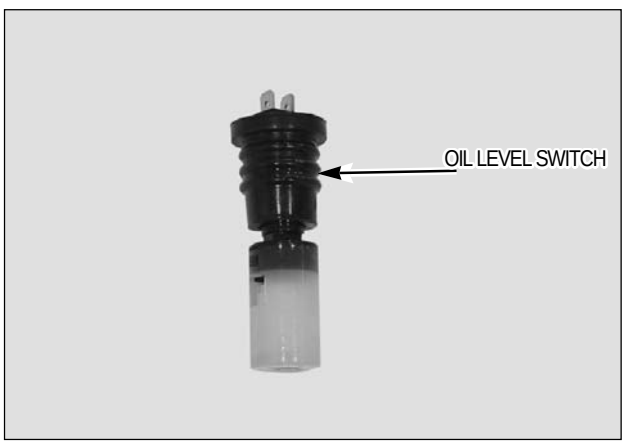
LOW OIL WARNING LIGHT BLINKING LEVEL : 0.15 L

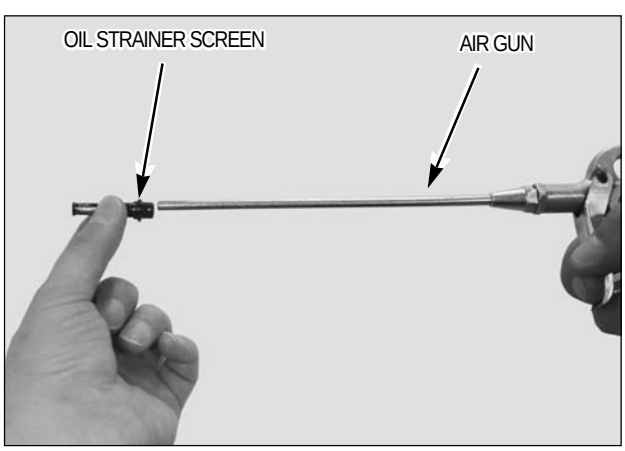
● Remove the oil tank cap and fill the oil tank with oil to the level of the projected portion..

RECOMMENDED OIL : ULTRA 2 SUPER OIL

● Reinstall the oil tank cap and check to see if the pilot lamp turns off when the main switch is turned on.







OIL TANK DISASSEMBLY

- Remove the luggage box.
- Remove the body cover.
- Loosen 2 flange bolts securing fuel tank and seatcatch.
- Loosen 2 washer bolts of setting stay securing luggage carrier.
- Remove the the switch connector of oil tank and the tube on the side of oil pump.
- Remove the oil level switch connector.
- Remove the tube on the side of oil pump.
- Install the tube clip or the valve in the oil tube to avoid the oil from leaking.
- Remove the flange bolt securing the oil tank and press the left and lower rear fender to remove the oil tank.
- Drain the oil from the oil tank.
- Remove the oil level switch.
- Remove the oil strainer.

INSPECTION

- Check the oil level switch and the oil tube for proper installation.
- Install in the reverse order of removal.

CAUTION

- If the oil enters into the oil pass, it may cause abnormal lubrication or engine sticking. Always remove the air in the oil pass after maintenance.
- Make sure that the oil tube is connected properly.
- Drain the oil in the clean container.
- Install the oil strainer after cleaning it.

TRANSMISSION OIL INSPECTION

- Check the body and the connection of each engine component for any leak.
- Remove the oil check bolt and check to see if the oil overflows from the oil check hole.
- If only the small amount of oil overflows, fill the recommended transmission oil through the oil filler hole gradually.

NOTE

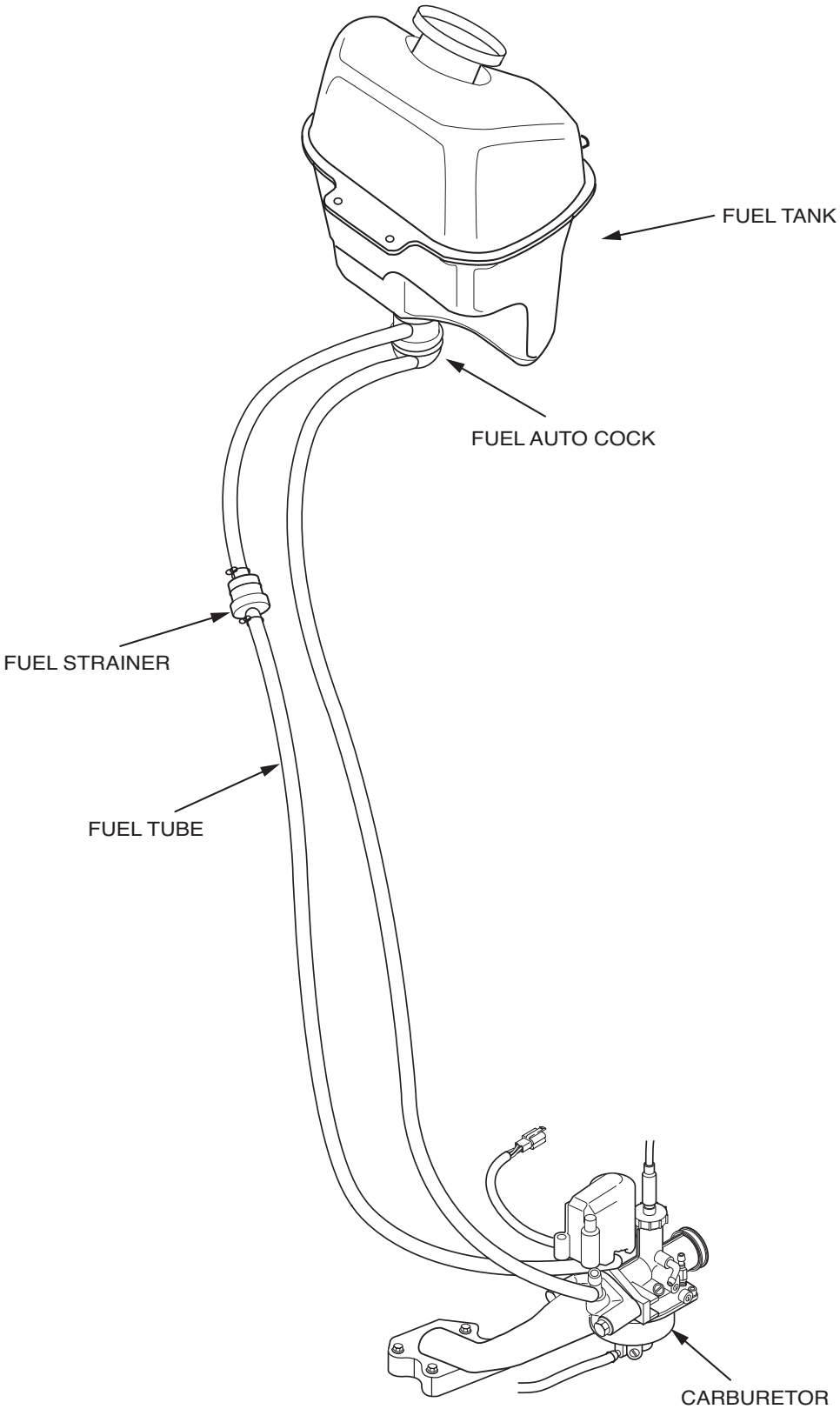
- Oil level inspection must be performed in the flat ground with the vehicle being straight by raising the main stand.

RECOMMENDED OIL : SAE 80W / 90

- Tighten the oil check bolt.
  TIGHTENING TORQUE : 1.3 kgf · m

- Start the engine and check for leak.

MEMO


FUEL TANK
FUEL AUTO COCK
FUEL STRAINER
FUEL TUBE
CARBURETOR

5. FUEL SYSTEM

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REED VALVE INSPECTION · 5-9

SERVICE INFORMATION

GENERAL SAFETY

WARNING

- Gasoline is extremely flammable. Avoid fire in the work place, also paying particular attention to sparks. Furthermore, the evaporated (gasified) gasoline is highly explosive. Work in a well-ventilated areas.
- Exhaust gas contains poisonous substance. Do not keep engine running for a long period of time in a closed, or poorly ventilated area.

CAUTION

- Do not excessively bend or twist cable. Distorted or damaged cable may lead to mechanical malfunctions.
- Pay particular attention to the position of O-ring. Replace with new ones when disassembled.
- If it is desired to store a vehicle for a period longer than 1 month, drain gasoline out of the carburetor float chamber. Gasoline left in the float chamber will be deteriorated causing the slow jet to be clogged with deposits, and idling may become unstable.

SPECIFICATIONS

FUEL TANK CAPACITY : 5.0 *l*

CARBURETOR

ITEM	STANDARD
TYPE/THROTTLE BORE	PA35
VENTURI DIAMETER	14mm
MAIN JET No / SLOW JET No.	#65 / #35
PILOT SCREW OPENING	1 ½ (1 ⅛)
FLOAT LEVEL	12.2mm
IDLING SPEED	2,000rpm
THROTTLE GRIP FREE PLAY	2-6mm

TOOL

FLOAT LEVEL GAUGE

TROUBLESHOOTING

The vehicle does not start.

- No gasoline in fuel tank.
- Fuel is not coming out of carburetor.
- Too much fuel is flowing into cylinder.
- No spark emitted from spark plug.
- Air cleaner is blocked.
- Suction system is experiencing secondary intake of air.
- Using low quality gasoline.
- Starter is damaged.
- Throttle cable is working improperly.
- Fuel tank is functioning improperly.

Idle is unstable and engine turns off after starting.

- Starter is damaged.
- Ignition system is damaged.
- Using low quality gasoline.
- Suction system is experiencing secondary intake of air.
- Idle is adjusted improperly.
- Air screw is adjusted improperly.
- Compression pressure is low.
- Air/Fuel mixture is either too lean or rich.
- Carburetor is blocked.

Mis-firing occurs when driving at high speeds.

- Ignition system is damaged.
- Mixture is too lean.

Back firing

- Ignition system is damaged.
- Mixture is too lean.

Insufficient power and high fuel consumption.

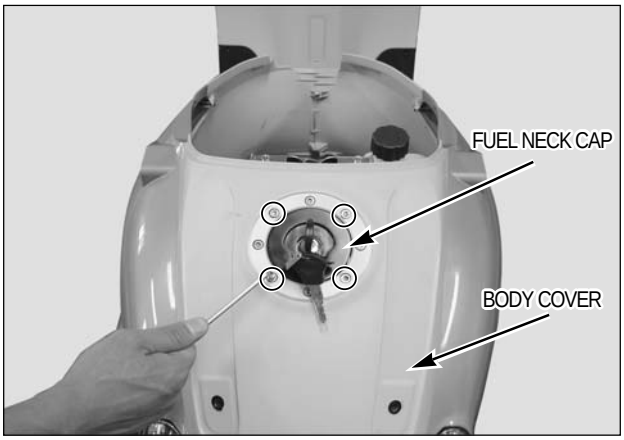
- Air cleaner is blocked.
- Ignition system is damaged.
- Mixture is too rich.

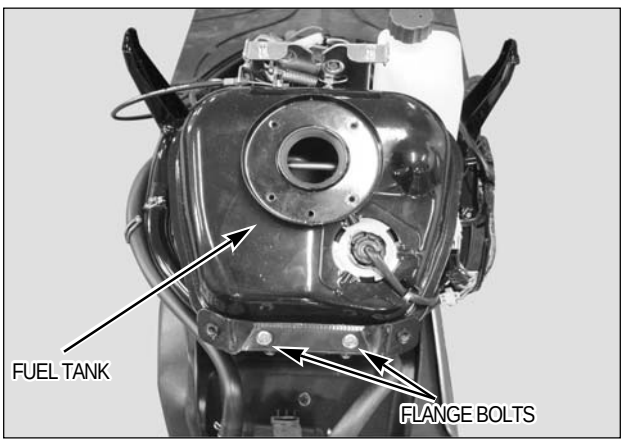
Air/Fuel mixture is extremely lean

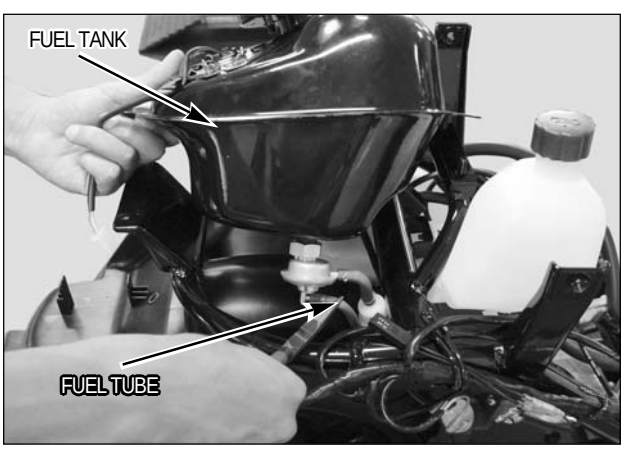
- Fuel jet is blocked.
- Float valve is damaged.
- Oil level is low.
- Bad ventilation of air in tank cap.
- Fuel strainer screen is blocked.
- Fuel tube is bent, creased or blocked.
- Suction system is receiving secondary suction of air.

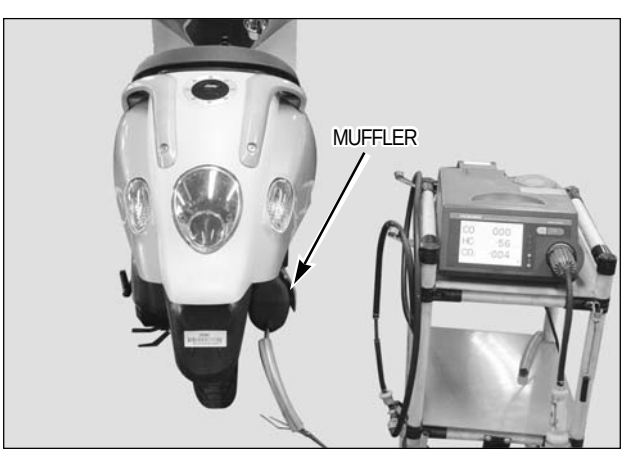
Air/Fuel mixture is extremely rich.

- Air jet is blocked.
- Float valve is damaged.
- Oil level is too high.
- Starter is damaged.
- Air cleaner is blocked.









FUEL TANK

REMOVAL

WARNING

• Gasoline is extremely flammable. Avoid fire during work, and pay particular attention to electric sparks. Furthermore, the evaporated (gasified) gasoline is highly explosive. Work in a well-ventilated areas.

- Remove the following parts.
  - Luggage box
  - Plug maintenance lid
  - Rear grips
  - Body cover (⇨ 3-4)
- Remove the fuel tube from the fuel strainer.

NOTE

• Use the tube clip or the cap to prevent the gasoline from leaking.

- Remove the fuel unit wire coupler.
- Loosen the 2 flange bolts and remove the seat catch.
- Loosen the 2 flange bolts of the rear grip stay.
- Remove the fuel tank.

INSTALLATION

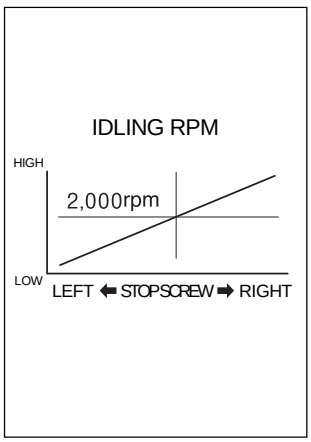
- Install in the reverse order of removal.

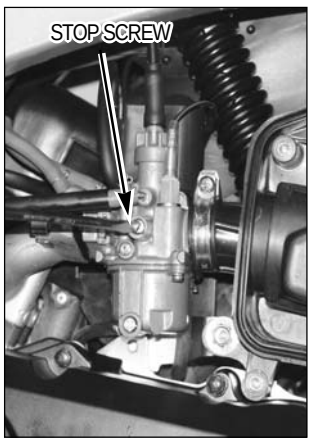
NOTE

• Check for gasoline leakage.
• "Gasoline" mark is on the fuel tank cap.
• Check this mark when filling gasoline.

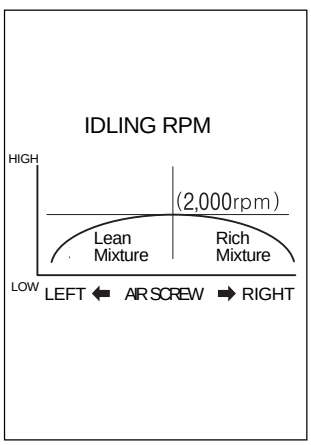
IDLING ADJUSTMENT

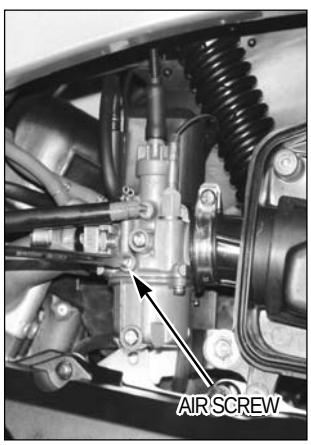
- Travel the vehicle 2~3km under the speed of 50km/h to stabilize the combustion on normal temperature.
- Set the main stand on an even place to secure the safety.



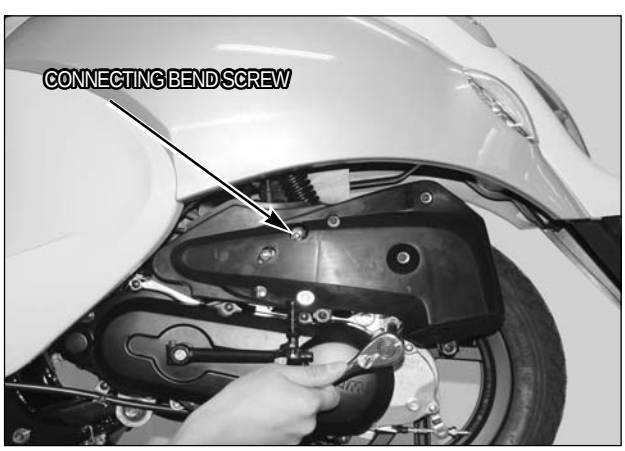


- Turn the stop screw to adjust the idling speed to 2,000rpm.



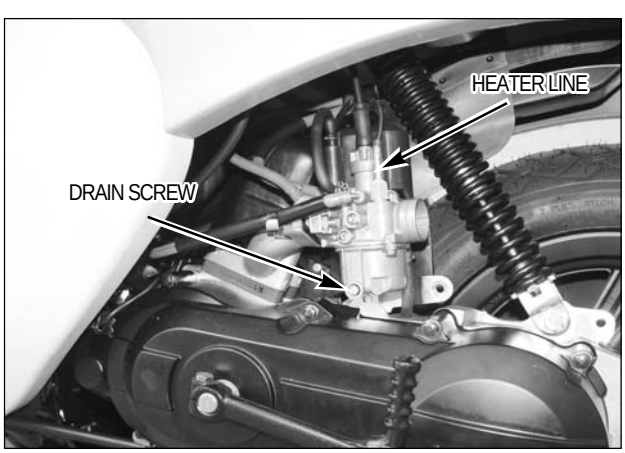


- Turn the air screw as 1/4 turn to find the highest engine rpm and adjust it to 2,000rpm.
- ※ Turning the air screw right-hand, the fuel will get thicker, and turning left-side, it will be thinner.
- As engine speed is set to 2,000rpm by use of air screw, lower the idling speed 20~50rpm.
  (Standard air screw:1 1/2 turn back)
- Slightly snap 2~3 times, and set to 2,000rpm by use of the stop screw.
- Slightly snap 2~3 times again to increase the stability and smooth the restarting, and complete the adjustment as 1,800~2,000rpm.



AIR CLEANER REMOVAL

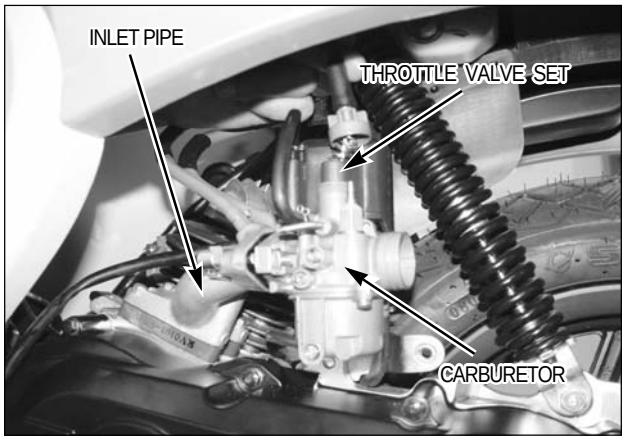
- Loosen the air cleaner connecting bend screw pin.
- Loosen the 2 bottom air cleaner washer bolts.
- Remove the air cleaner from the carburetor.
- Install in the reverse order of removal.



CARBURETOR REMOVAL / INSTALLATION

NOTE

- Keep the fire away.
- Open the drain screw to drain the gasoline in the carburetor chamber.

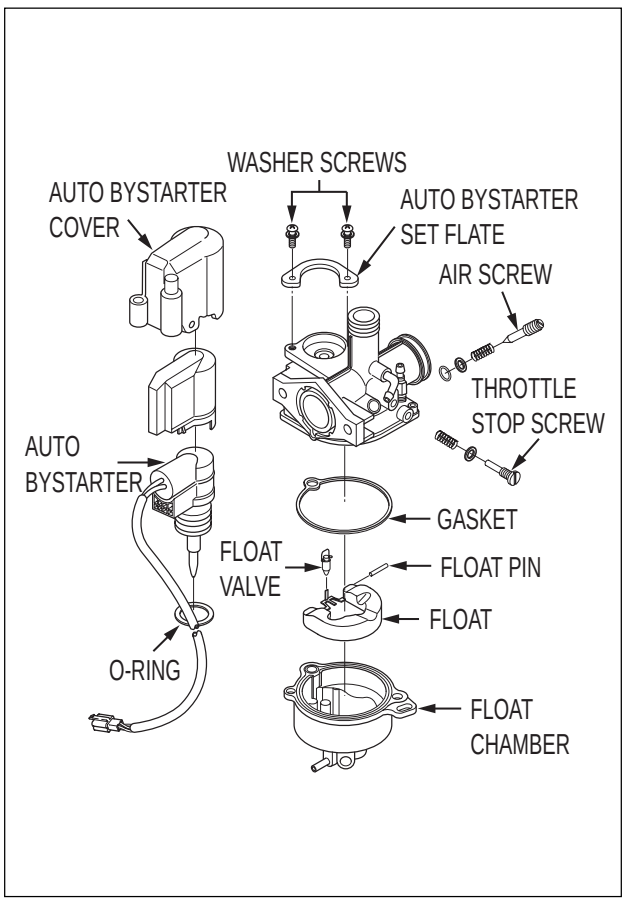


- Remove the air cleaner.
- Remove the wiring coupler of the auto bystarter
- Remove the oil pass tube.
- Remove the throttle valve set.
- Remove the 2 flange bolts securing the inlet pipe.
- Remove the carburetor insulator.
- Remove the carburetor.
- Install in the reverse order of removal.

NOTE

- Install the carburetor after aligning the throttle valve cutaway and the throttle stop screw.
- Tighten the top set correctly so that it is not released.

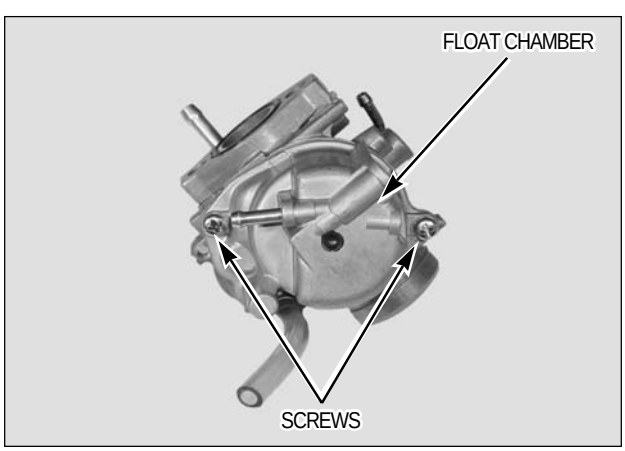
CARBURETOR DISASSEMBLY / ASSEMBLY



- Remove the auto bystarter cover.
- Loosen the 2 washer screws.
- Remove the auto bystarter set plate.
- Remove the auto bystarter.
- Remove the auto bystarter O-ring.
- assembly in the reverse order of disassembly.

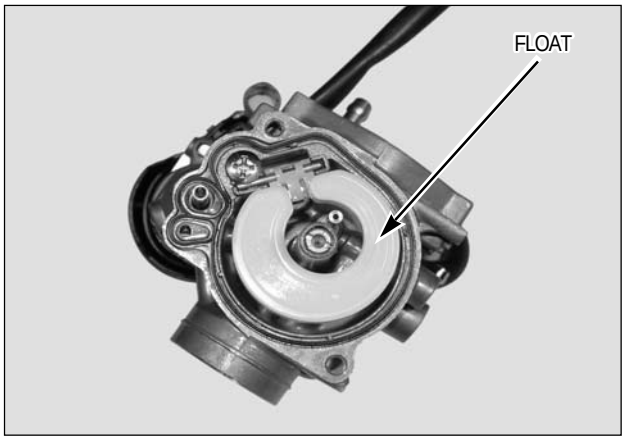
NOTE

- Install the auto bystarter in the carburetor body after applying grease to the starter O-ring and then tighten firmly with set plate piece.



FLOAT CHAMBER / FLOAT / JET DISASSEMBLY / ASSEMBLY

- Loosen the 2 float chamber screws.
- Remove the float chamber.

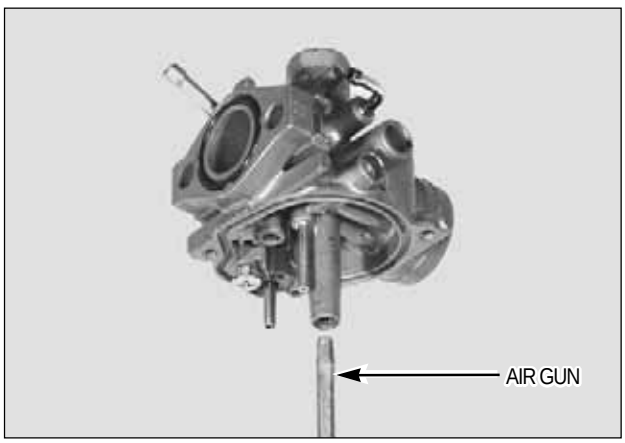


INSPECTION

- Check the flot valve and seats for cracks or damage.
- Check the flot valve operation.
- Check the flot valve level.

FLOAT LEVEL : 12.2 mm

- Remove the main jet, needle jet holder, and needle jet, and remove the slow jet.
- Remove the air screw, spring, washer, O-ring.
- Remove the throttle stop screw, spring, O-ring.



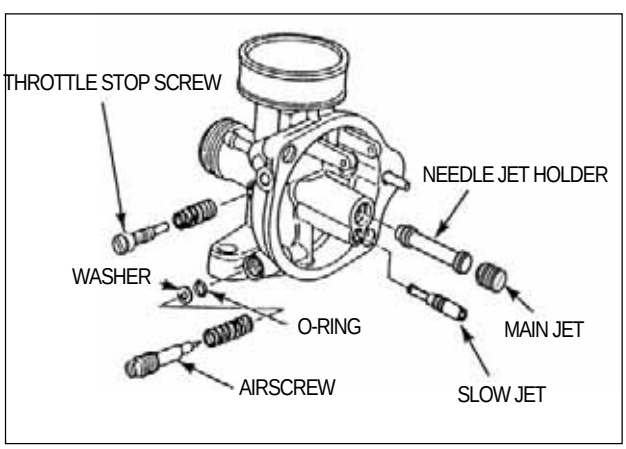
CARBURETOR CLEANING

- After removing all parts, blow open air and fuel passage in the carburetor body with compressed air.

CAUTION

- Cleaning the air and fuel passage with a piece of wire will damage the carburetor body or fuel pump.

- Install in the reverse order of disassembly.

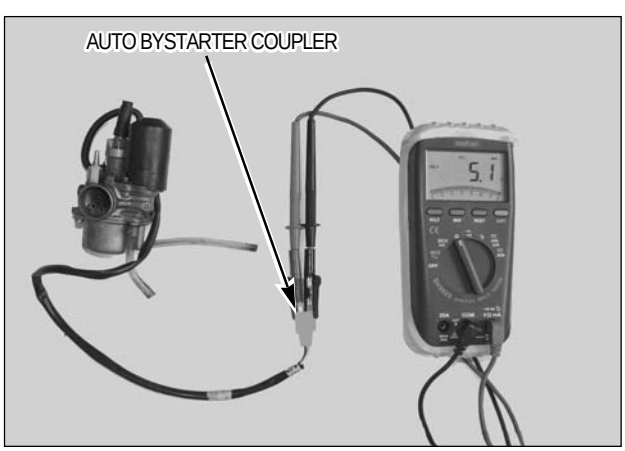


CAUTION

- Tightening air screw against its seat will damage the seat.

NOTE

- Be sure to install the needle jet with the smaller hole toward the float chamberr.
- Install the air screw and its O-ring and washer in the order as shown in the drawing. If the air screw and carburetor body are replaced with the new ones, adjustment is necessary.

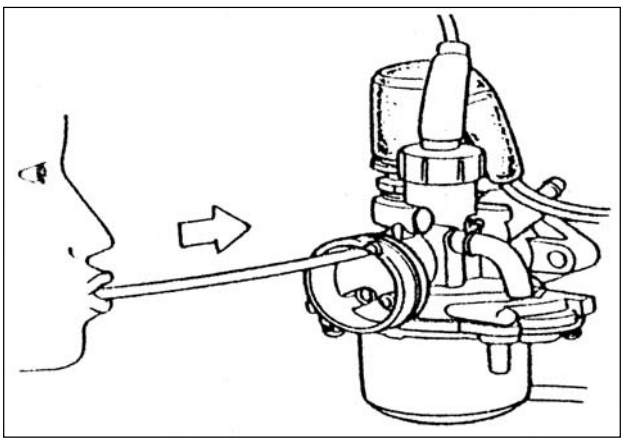


CARBURETOR INSPECTION

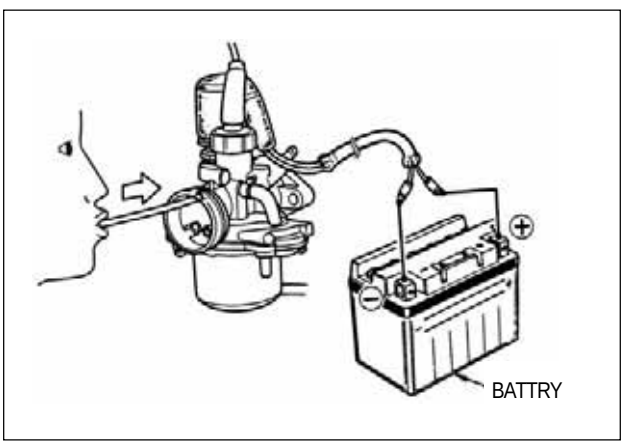
- Connect an ohmmeter to the auto bystarter wire connector terminals and measure the resistance. If the resistance is greatly out of specification, it indicates a faulty PTC in the auto bystarter. Replace the auto bystarter.

NOTE

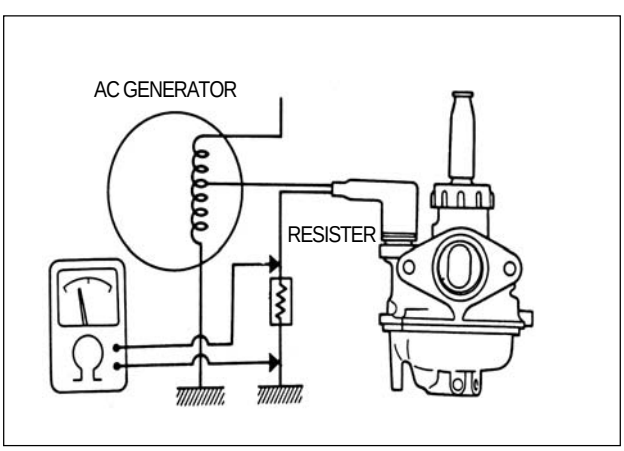
- The auto bystarter might be normal if the resistance is only slightly out of specification. However, be sure to check all related parts for trouble.
- Refer to the Model specific manual for specified resistance.



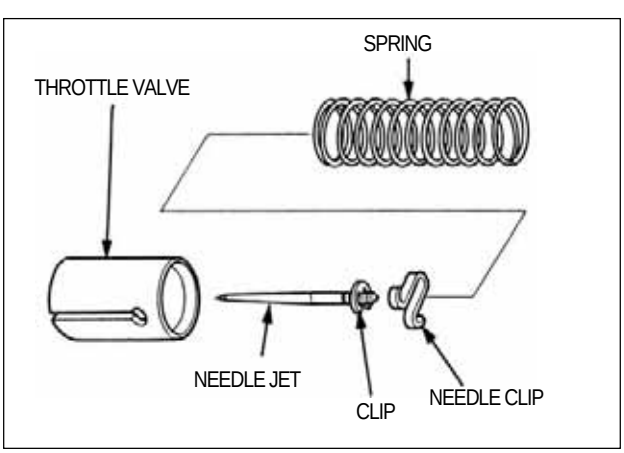
- Remove the carburetor and let it cool down for 30 minutes. Insert a vinyl tube into the fuel enrichening circuit and blow into the tube.
- Air should flow into the circuit.
- If air does not flow into the circuit, replace the auto bystarter.



- Connect the battery to the auto bystarter terminals and wait for 5 minutes.
- Insert a vinyl tue into the fuel enrichening circuit and blow into the tube.
- Air should not flow into the circuit. If air flows into the circuit, replace the auto bystarter.



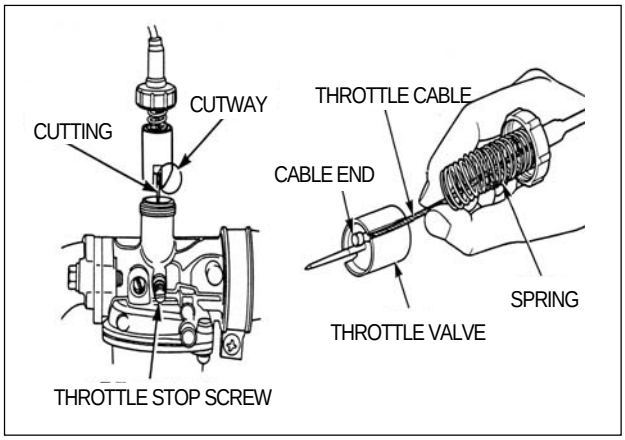
- Check the resister if the auto bystarter is normal but engine is still hard to start.
- If there is a broken wire in the resister, current will not flow to the PTC and the auto bystarter will not operate.
- If there is a shorted wire in the resister, current of a higher voltage than specified will reach the PTC. this will cause the fuel enrichening circuit to close too soon, and starting will be difficult.

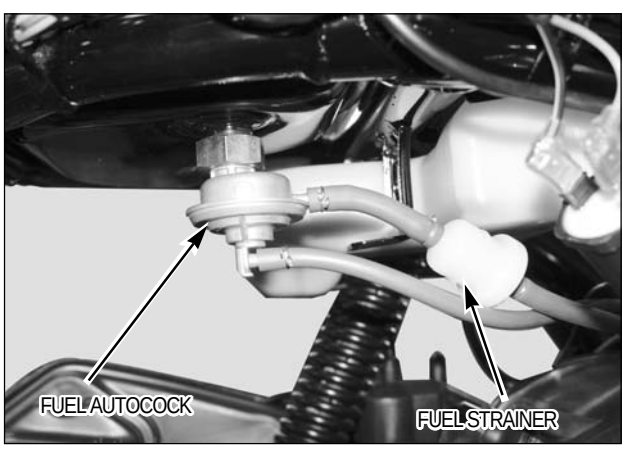


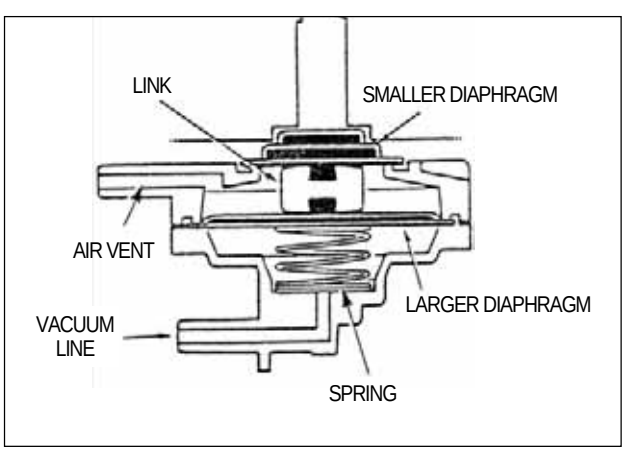
THROTTLE VALVE

DISASSEMBLY

- Remove the throttle valve.
- Remove the throttle cable.
- Remove the throttle valve spring.
- Remove the needle clip.
- Remove the clip.
- Remove the jet needle.







ASSEMBLY

- Install the jet needle into the throttle valve and secure with the retainer.
- Route the throttle cable through the spring and compress the spring fully.
- Attach the throttle cable end to the bottom of the throttle valve and thread the throttle cable through the slot in the valve.
- Align the cutout in the throttle valve with the throttle stop screw on the carburetor body and install the valve on the carburetor.

NOTE

- Be sure that the throttle valve cutaway is toward the air cleaner case side as it determines the volume of air for fuel mixture.

- Operate the valve after installing the throttle valve.

FUEL AUTO COCK

REMOVAL / INSTALLATION

- Remove the luggage box.
- Remove the maintenance lid.
- Remove the rear grip
- Remove the body cover.
- Remove the fuel tube A,B connected to the carburetor.
- Remove the inlet pipe negative pressure tube.
- Remove the fuel tube A,B connected to the fuel tank.
- Remove the flange bolt securing the fuel auto cock and the frame.
- Remove the fuel auto cock.
- Install in the reverse order of removal.

CAUTION

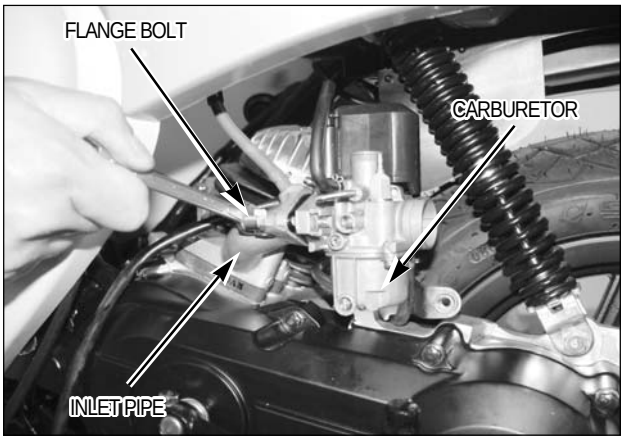
- Be sure to remove the diaphragms from the fuel auto valve before using compressed air to blow out of air passages. Compressed air wil damage the diaphragms or may force them off the aliminum.

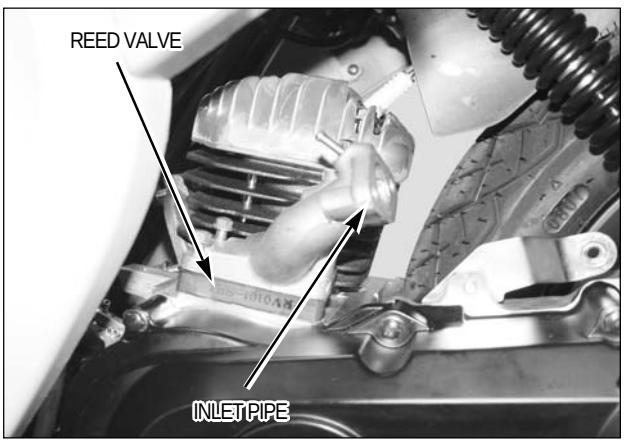
- Disconnect the fuel line and place it in a clean container as shown.

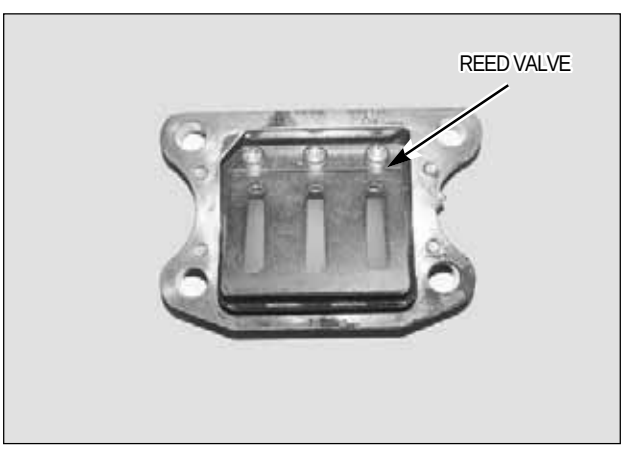
NOTE

- Place a clean contaier under the fuel tube.
- Refer to the Model Specific manual for replacement.

- Connect the fuel auto valve vacuum tube to the vacuum pump and apply vacuum. Be sure that the fuel flows out smoothly. If the vacuum does not remain steady, it indicates the diaphragm is incorrectly installed or damaged. If the vacuum remains steady, but the fuel flow is not smooth, it indicates a clogged filter or incorrectly installed diaphragm.
- If the fuel flows without the vacuum applied, the diaphragm is incorrectly installed.







INLET PIPE / REED VALVE

REMOVAL / INSTALLATION

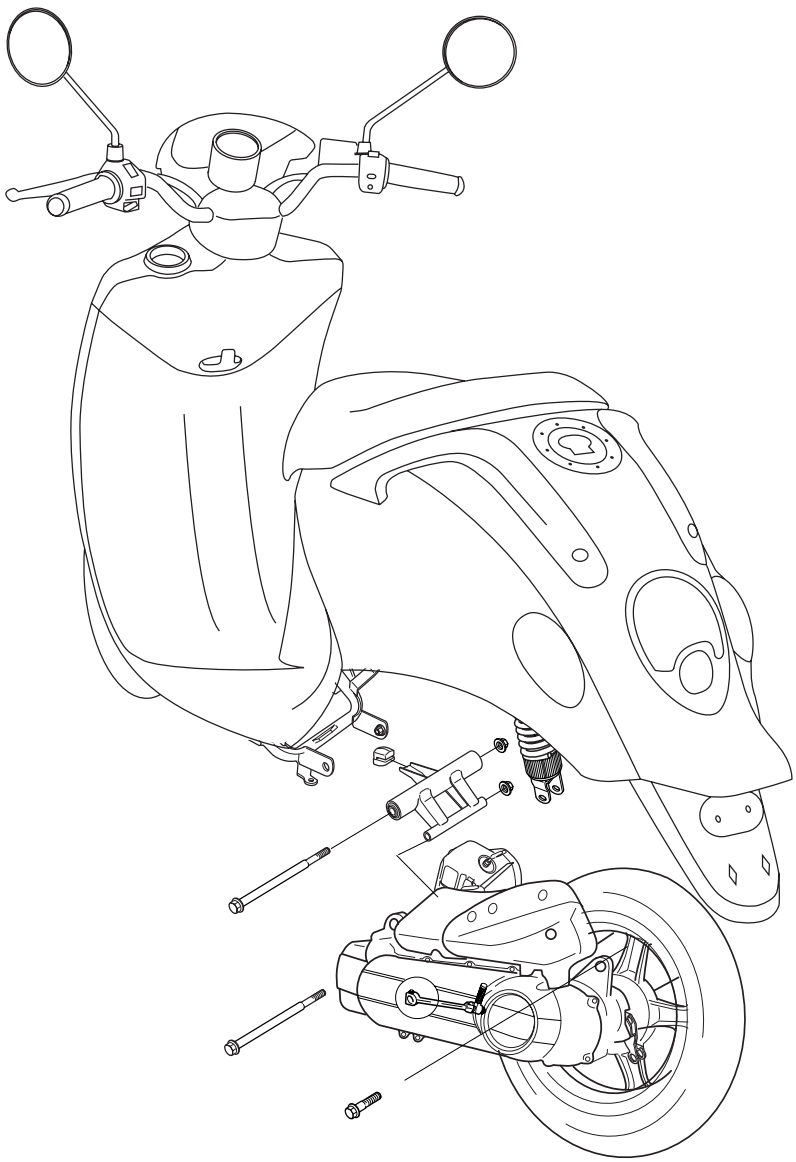
- Remove the luggage box.
- Remove the air cleaner.
- Remove the carburetor.
- Remove the vacuum tube connected to the inlet pipe.
- Remove the oil pump cable.
- Remove the fan cover and shroud.
- Remove the inlet pipe securing 4 flange bilts connected to the LH. crank case.
- Remove the inlet pipe.
- Remove the reed valve.
- Install in the reverse order of removal.

INSPECTION

- Check the reed valve for fatigue or damage and replace the reed valve assembly if necessary.
- Check the reed valve seat for cracks, damage and clearance from the reed and replace the reed valve assembly if necessary.

NOTE

• Be sure to replace the reed valve as an assembly. Disassembling or bending the reed stopper will cause engine trouble.



6. ENGINE REMOVAL/INSPECTION

SERVICE INFORMATION · · · · · 6-1
ENGINE REMOVAL/INSPECTION · · 6-2

SERVICE INFORMATION

GENERAL SAFETY

NOTE

- Use a jack to remove or install the engine. Support the motorcycle with a jack firmly, taking precautions not to damage the frame, engine, cable or harness.
- Attach tape to the frame to protect it during the engine removal or installation.

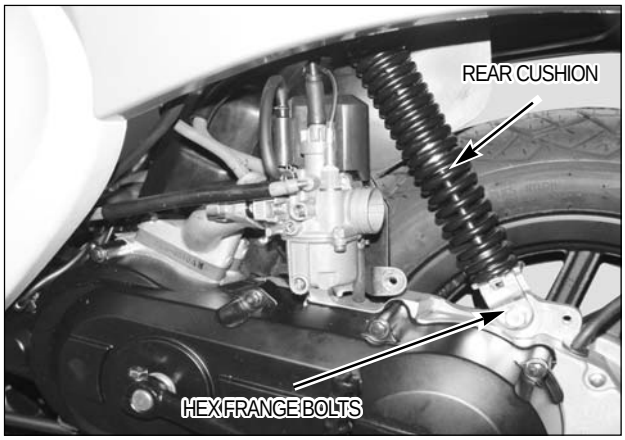
● The following works can be carried out without removing the engine from the vehicle body.

-TRANSMISSION (⇨SECTION 9)
-A.C. GENERATOR (⇨SECTION 13)
-KICK STARTER/ CONTINUOUSLY VARIABLE TRANSMISSION (⇨SECTION 7)
-CYLINDER HEAD/ CYLINDER/ PISTON (⇨SECTION 8)
-CARBURETOR (⇨SECTION 5)
-OIL PUMP (⇨SECTION 4)

● Items to be worked after removing engine.
-CRANKSHAFT, CRANKSHAFT BEARING, CRANK CASE BEARING

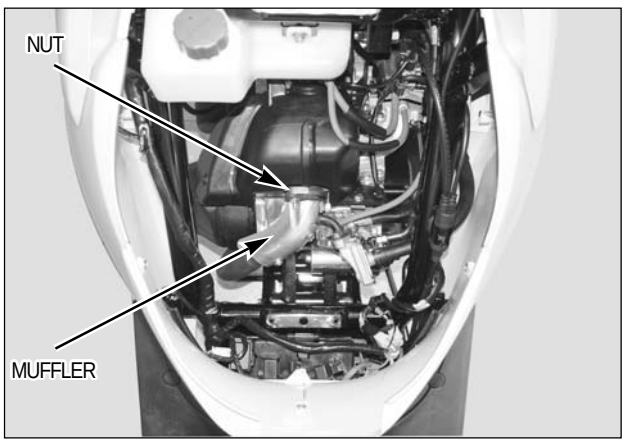
TORQUE VALUES :

ENGINE HANGER BOLT (ENGINE) : 5.0㎏f · m
(FRAME) : 7.3㎏f · m

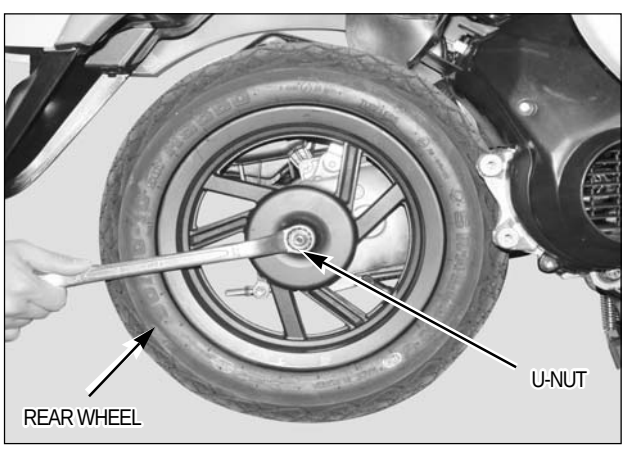


ENGINE REMOVAL

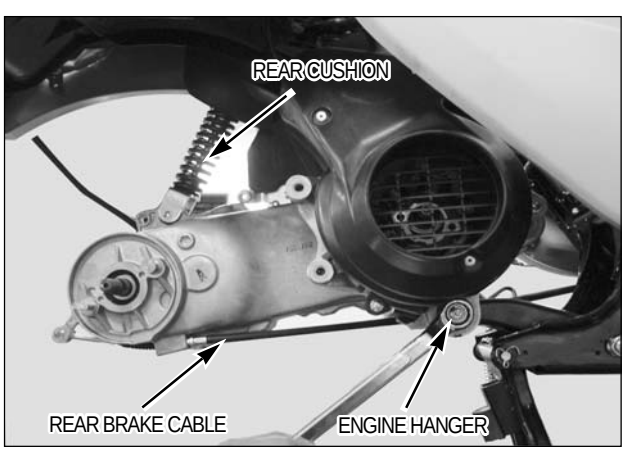
- Remove the luggage box.
- Disconnect the A.C generator coupler.
- Disconnect the carburetor auto bystarter coupler.
- Remove the spark plug cap.



- Remove the oil pump cable.
- Remove the oil tube connected to the oil pump.
- Remove the vacuum tube connected to the inlet pipe.
- Remove the fuel tube connected to the carburetor and the auto cock.
- Loosen the carburetor cap top, remove the throttle valve.



- Loosen the rear brake adjust nut, and remove the brake arm joint B, and rear brake cable.
- Loosen the under bolt at the end of rear cushion
- Remove the muffler.
- Remove the rear wheel.



- Loosen the engine hanger U-nut.
- Loosen the engine hanger flange bolt.

NOTE

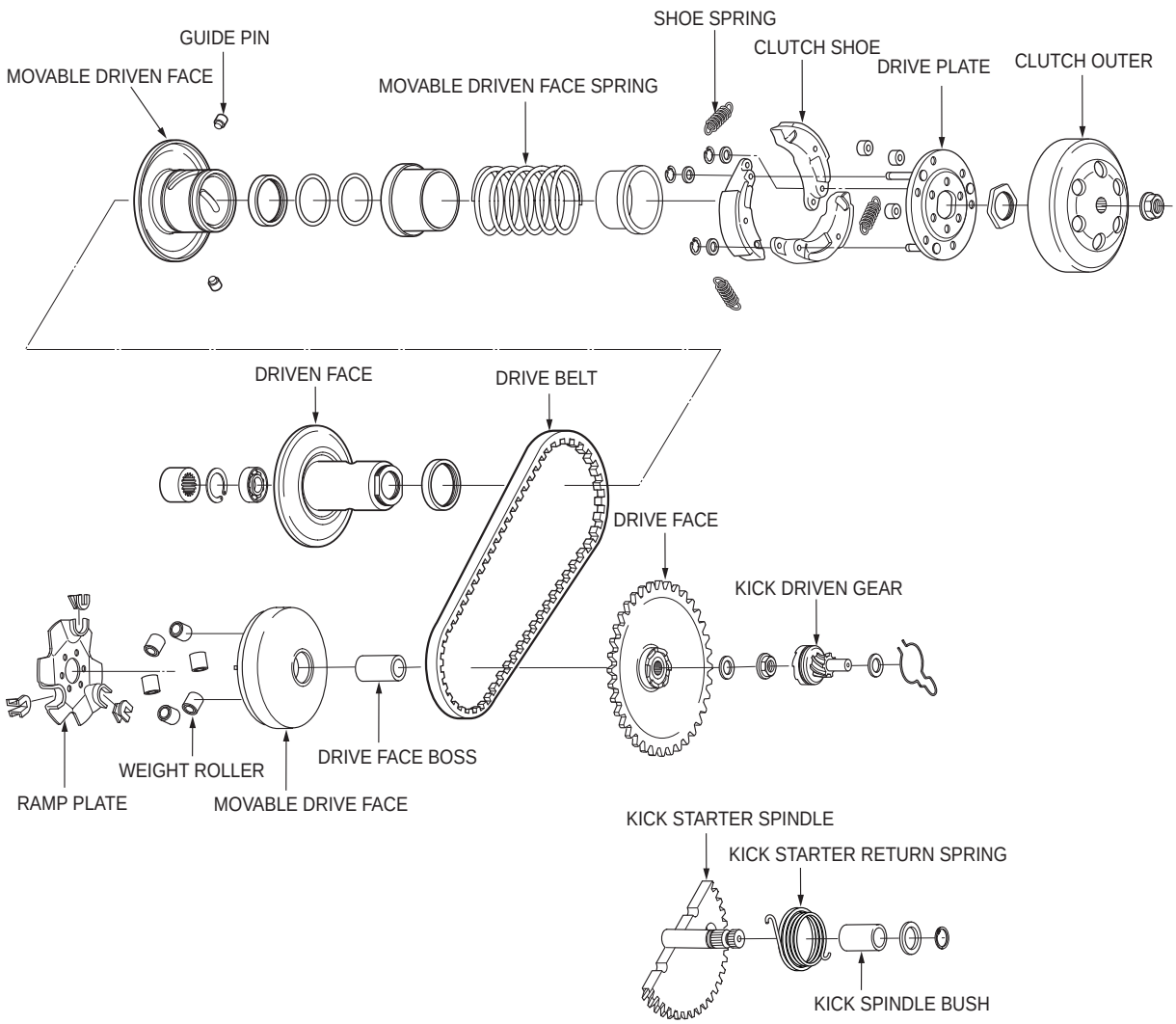
- Take action to prevent oil from leaking (Install the clip in the oil tube)
- Take precautions not to damage the engine when removing the engine from the chasis.

- Remove the engine. (with the muffler and rear wheel attached)
- Install in the reverse order of removal.

- Check the following after the engine is assembled.
  -Electric systems.
  -Adjust of the rear brake free play.
  -Inspection of the throttle cable operation.
  -Inspection of the oil pump cable operation.

NOTE

- Take precautions not to damage wiring and cable.
- Take precautions not to damage the threaded part of bolts.
- Arrange the cable, tubes and wiring in the right positions.


GUIDE PIN
MOVABLE DRIVEN FACE
MOVABLE DRIVEN FACE SPRING
SHOE SPRING
CLUTCH SHOE
DRIVE PLATE
CLUTCH OUTER
DRIVEN FACE
DRIVE BELT
DRIVE FACE
KICK DRIVEN GEAR
RAMP PLATE
WEIGHT ROLLER
MOVABLE DRIVE FACE
DRIVE FACE BOSS
KICK STARTER SPINDLE
KICK STARTER RETURN SPRING
KICK SPINDLE BUSH

7. KICK STARTER/CONTINUOUSLY VARIABLE TRANSMISSION

SERVICE INFORMATION · · · 7-1
SERVICE STANDARD · · · · 7-1
TROUBLESHOOTING · · · · 7-1
LH. SIDE COVER REMOVAL · 7-2
KICK STARTER · · · · · · 7-2
DRIVE BELT · · · · · · · · 7-4
MOVABLE DRIVE FACE · · · · 7-6
DRIVEN PULLY · · · · · · 7-8
CLUTCH/DRIVEN PULLY ASSEMBLY · · 7-12

SERVICE INFORMATION

GENERAL SAFETY

- Do not allow oil to contact the drive belt or the pulley face. The transmission rate of driving force is reduced with oil contact.
- Do not operate starter motor while the LH. crank case front cover is removed.

NOTE

· Take precautions not ot apply the grease oil to the movable drive face or weight roller.

SPECIFICATIONS

ITEM	STANDARD	SERVICE LIMIT
MOVABLE DRIVE FACE BUSHING INNER DIAMETER	20.035-24.0520.085mm	20.60mm
DRIVE FACE BOSS OUTER DIAMETER	20.011-20.025mm	19.97mm
DRIVE BELT WIDTH	15.0mm	15.5mm
WEIGHT ROLLER OUTER DIAMETER	15.920-16.080mm	15.40mm
CLUTCH OUTER AND INNER DIAMETER	107.0-107.2mm	107.50mm
DRIVEN FACE OUTER DIAMETER	33.965-33.985mm	33.94mm
DRIVEN FACE INNER DIAMETER	34.000-34.025mm	34.06mm

TROUBLESHOOTING

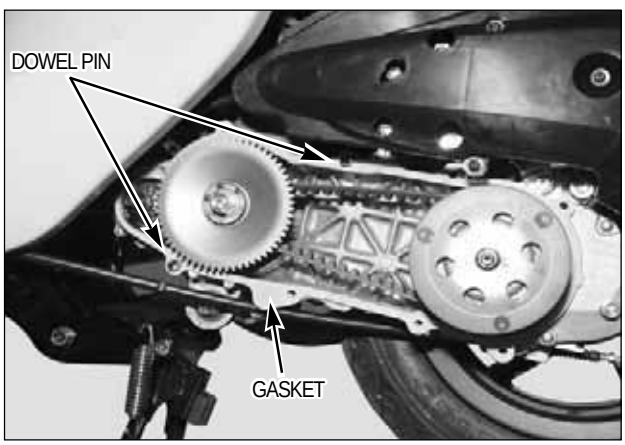
Engine starts but motorcycle does not work.
- Drive belt worn.
- Ramp plate damaged.
- Clutch shoe worn or damaged.
- Movable driven face spring cut.

Engine stops, or the vehicle runs suddenly, after starting.
- Clutch shoe spring cut.

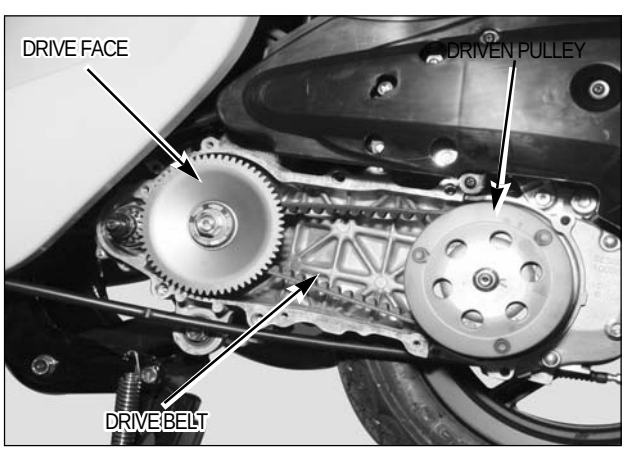
Vehicle unable to run at the maximum speed, or lack of output
- Drive belt worn.
- Defective movable driven face spring.
- Weight roller worn.
- Pulley face contaminated.

LH. SIDE COVER REMOVAL

- Remove the rear brake cable.
- Remove the 9 flange bolts securing LH. side cover.
- Remove the LH. side cover.



- Remove the gasket and the dowel pin.

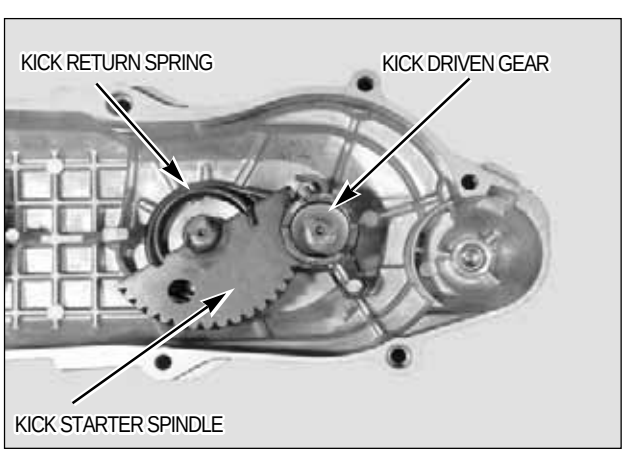


NOTE

· Install the new gasket and dowel pin after removing the gasket of the crankcase surface.

- Align the bolts to uniform the tightening location before tightening then when you don't know the bolt length.
- Tighten the bolts diagonally with specified tightening torque.

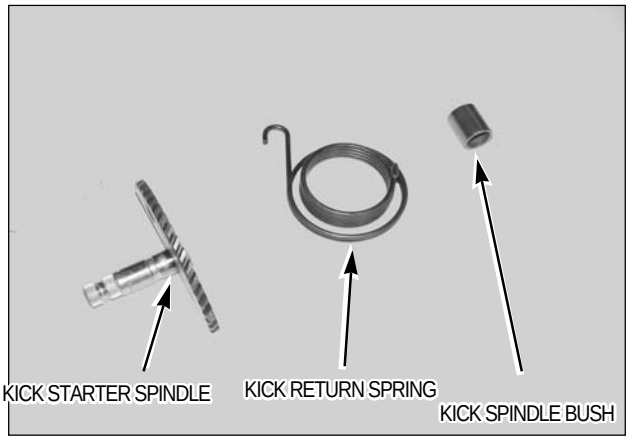
TORQUE : 1.0kgf · m



KICK STARTER

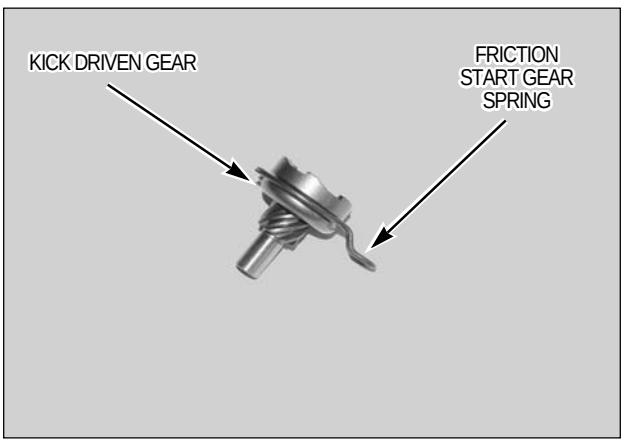
REMOVAL

- Remove the LH. side cover.
- Loosen the flange bolt securing the kick starter arm, remove the kick starter arm.
- Remove the 14mm external circlip.
- Remove the kick spindle washer.
- Remove the kick starter spondle.
- Remove the kick spindle spring, bush.

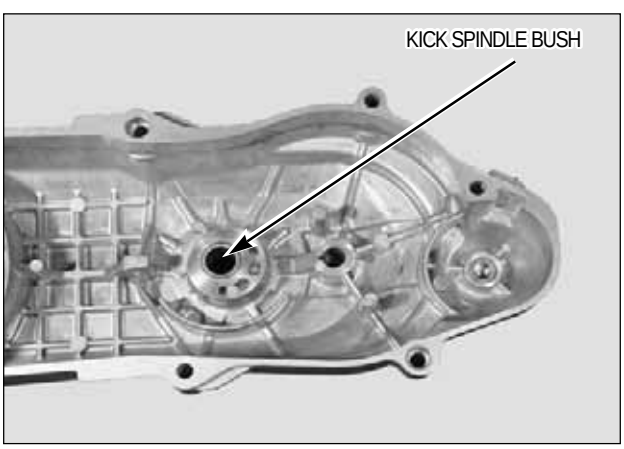


INSPECTION

- Inspect wear and damage of the kick starter spindle and gear portion.
- Inspect damage to return spring.
- Inspect defects and damage of the kick starter spindle bushing.

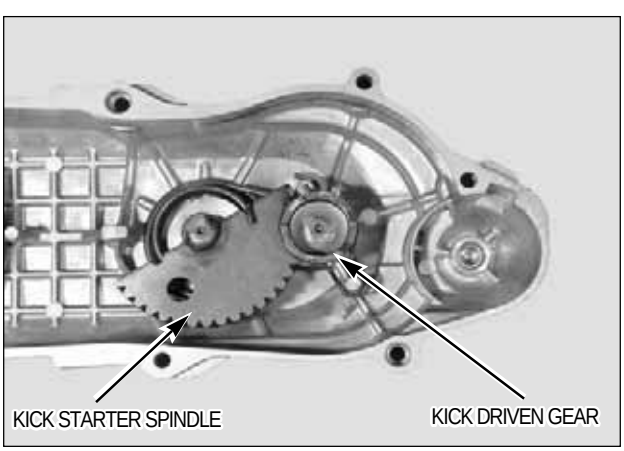


- Inspect wear and damage of the kick starter ratchet.
- Inspect damage to friction spring.



KICK STARTER INSTALLATION

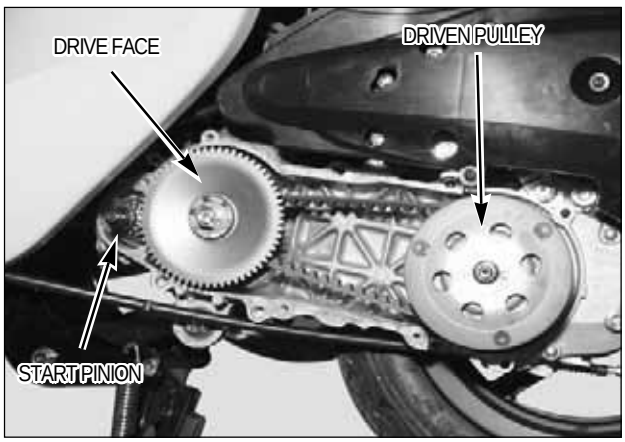
- Install the kick spindle bush, spring in the LH. side cover.
- Install the kick starter spindle in the LH. side cover.
- Install the kick starter spindle washer.
- Install the 14mm external circlip in the L. side cover.
- Install the kick starter arm.
- Install the kick spindle springn in the groove of the LH. side cover.
- Install the thrust washer.



- Rotate the kick starter spindle using the kick starter arm, draw the spindle to the L. side cover and assemble the kick starter ratchet.

NOTE

- When installing the 14mm external circlip, keep holding the spindle manually and install the circlip in the groove correctly.
- Apply the grease to the kick starter ratchet groove and gear.
- Check the kick starter ratchet and the kick starter spindle for smooth operation after installation.



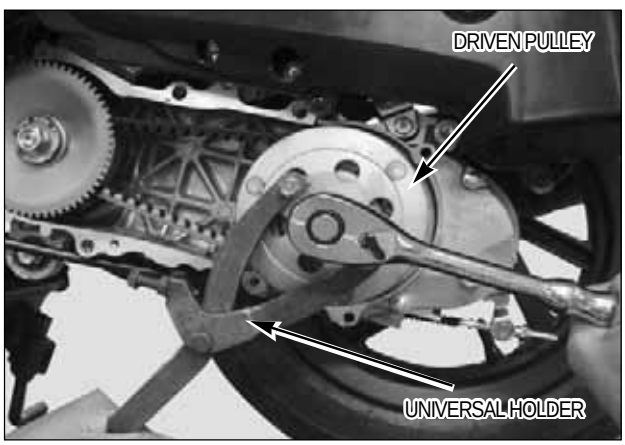
DRIVE BELT

REMOVAL

- Remove the LH. side cover.
- Remove the 2 dowel pins and gasket.

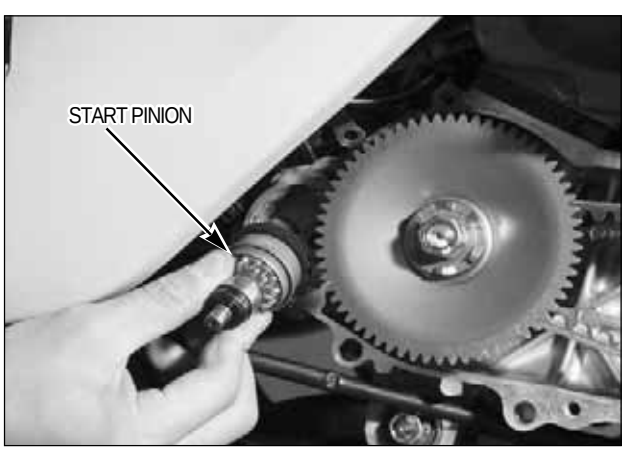
CAUTION

· Use the special tool when loosening the lock nut. Holding the rear wheel or rear brake will damage the final reduction system.

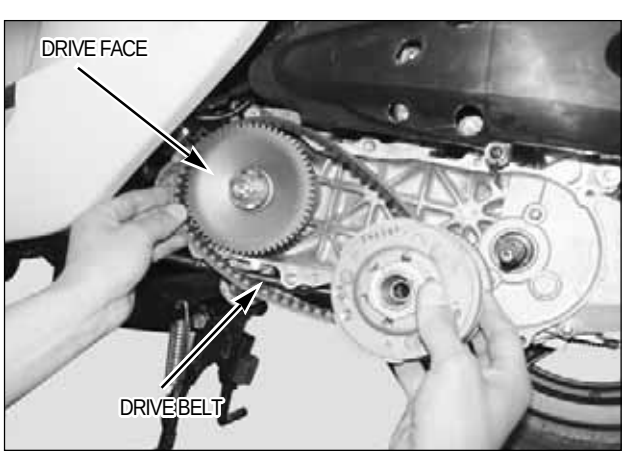


- Hold the clutch outer using the universal holder and remove the nut.
- Remove the clutch outer.

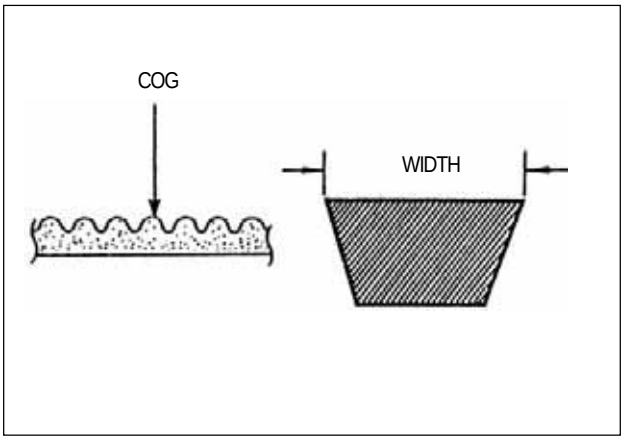
TOOL : UNIVERSAL HOLDER



- Remove the start pinion ass'y.



- Remove the driven pulley / clutch with the drive belt in place.
- Remove the drive belt from the driven pulley groove and drive pulley groove.



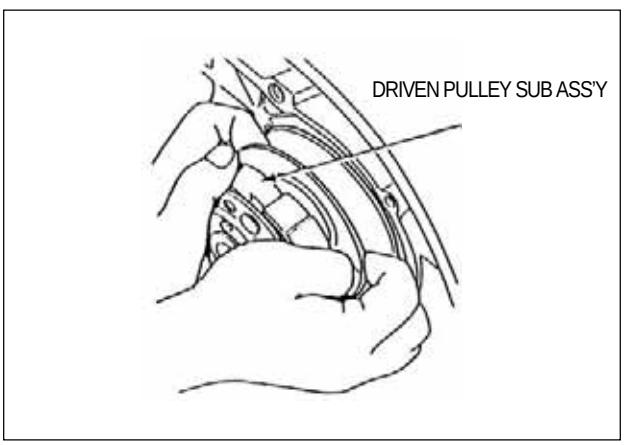
DRIVE BELT INSPECTION

- Check the drive belt for cracks, pry separation and wear;replace as necessary.
- Measure the width of the drive belt as shown.
- Replace the belt if the service limit is exceeded.

SERVICE LIMIT : 15.5mm

NOTE

· Use only a genuine DAELIM replacement drive belt.
· Do not get oil or grease on the drive belt or pulley faces. Clean off any grease or oil before reinstalling.

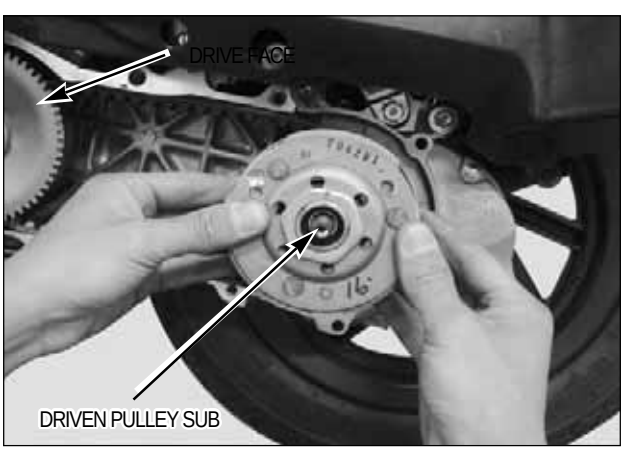


DRIVE BELT INSTALLATION

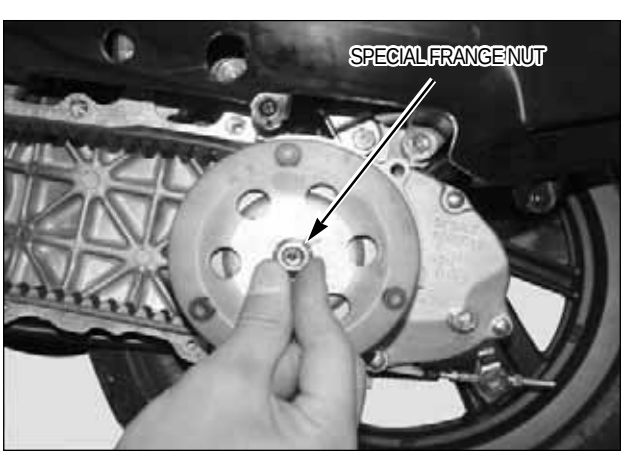
- Turn the pulley clockwise and spread the faces apart while installing the drive belt.

NOTE

· Hold the pulley faces apart preventing them from closing.

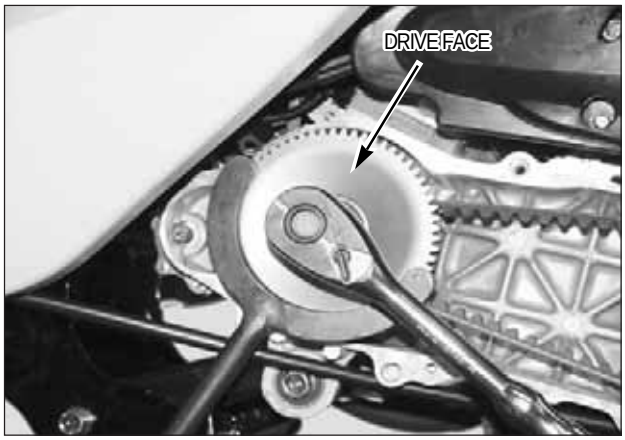


- Install the pulley assembly once with the drive belt.
- Install the clutch outer.



- Temporarily install the driven pulley with special flange nut and tighten the nut to the specified torque.

TORQUE : 4.0kgf · m
TOOL : UNIVERSAL HOLDER

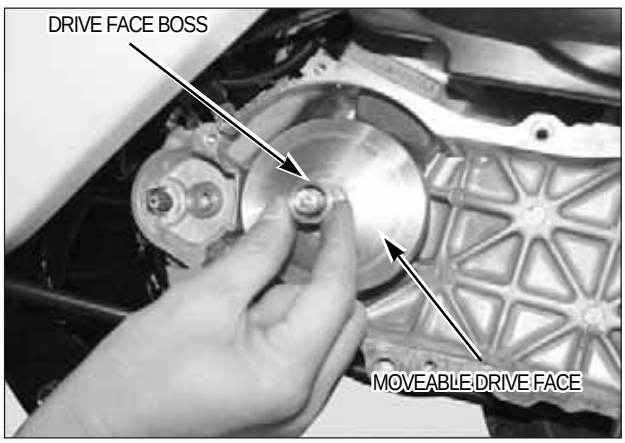


MOVABLE DRIVE FACE

REMOVAL

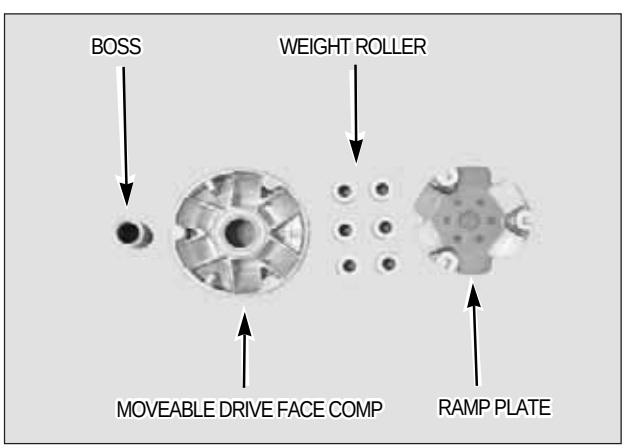
- Remove the LH. side cover. (⇨7-2)
- Remove the start pinion gear.
- Hold the drive face using the clutch center holder and remove the nut and washer.

TOOL : CLUTCH CENTER HOLDER



MOVABLE DRIVE FACE DISASSEMBLY

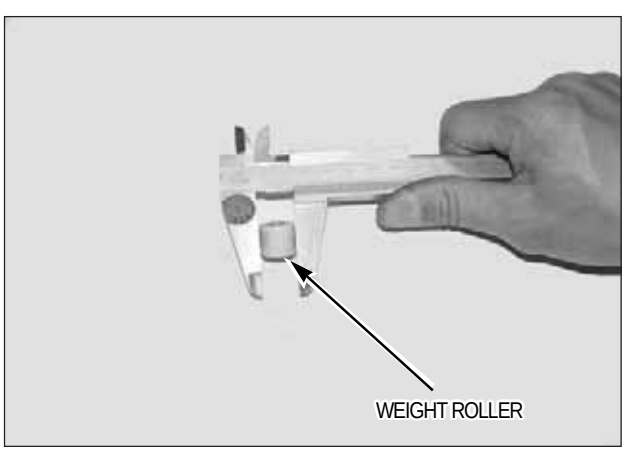
- Remove the dirve face boss.
- Remove the movable drive face.

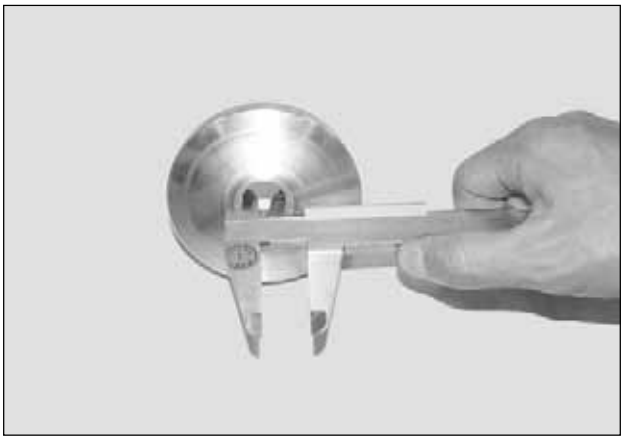


MOVABLE DRIVE FACE INSPECTION

- The weight rollers push on the movable drive pulley face (by centrifugal force); worn or damaged weight rollers will interfere with this force.
- Check the rollers for wear or damage and replace as necessary.
- Measure the O.D. of each roller, replace if the service limit is exceeded.

SERVICE LIMIT : 15.4MM



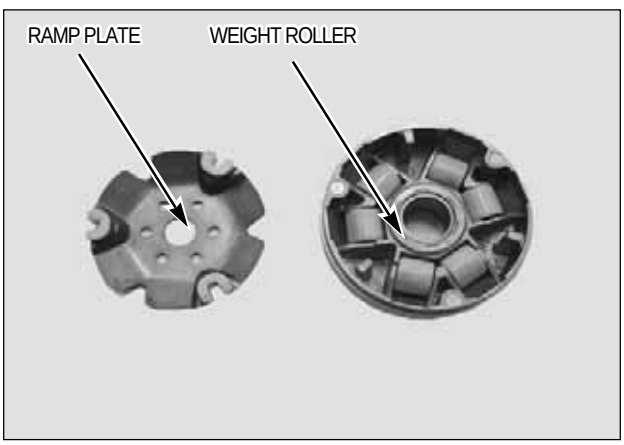


- Measure the movable drive face inner diameter.

SERVICE LIMIT : 20.6MM

- Check the drive face boss for wear or damage and replace as necessary.
- Measure the O.D of the drive face boss. Replace the boss if the service limit is exceeded.

SERVICE LIMIT : 19.97MM



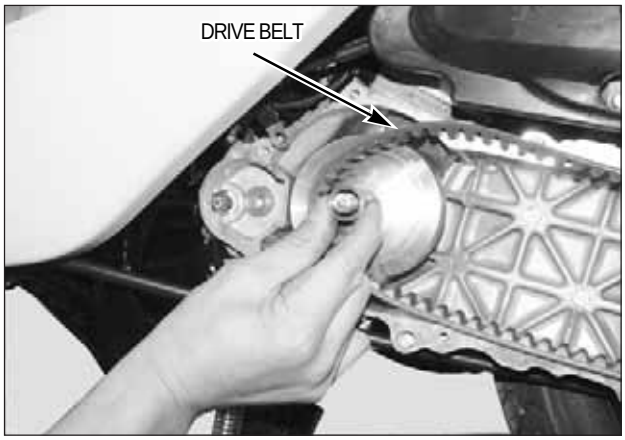
MOVABLE DRIVE FACE ASSEMBLY / INSTALLATION

- Install the weight roller on the movable drive face.
- Install the ramp plate.
- Install the movable drive face boss.

NOTE

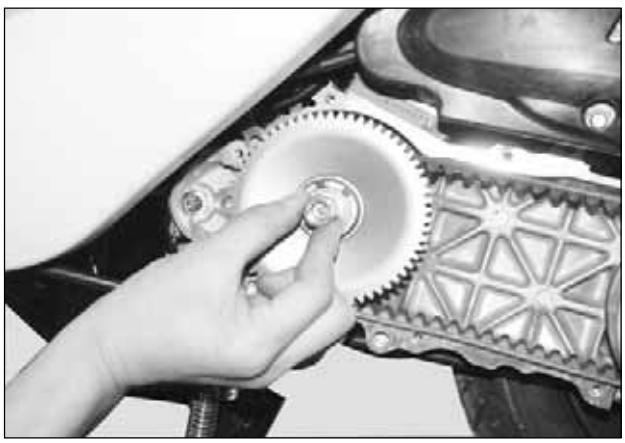
· Do not get the grease on the pulley face. Remove any misplaced grease with a degreasing agent.

- Install the movable face assembly on the crankshaft.



DRIVE FACE INSTALLATION

- Install the drive belt on the crank shaft.



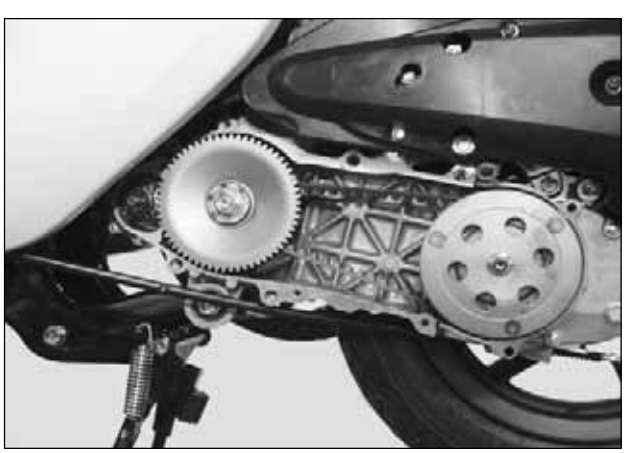
- Install the drive face on the crank shaft serration.
- Install the washer and install flange nut.

- Tighten the drive pulley nut to the specified torque.

TORQUE VALUE : 5.5kgf · m
TOOL : CLUTCH CENTER HOLDER

NOTE

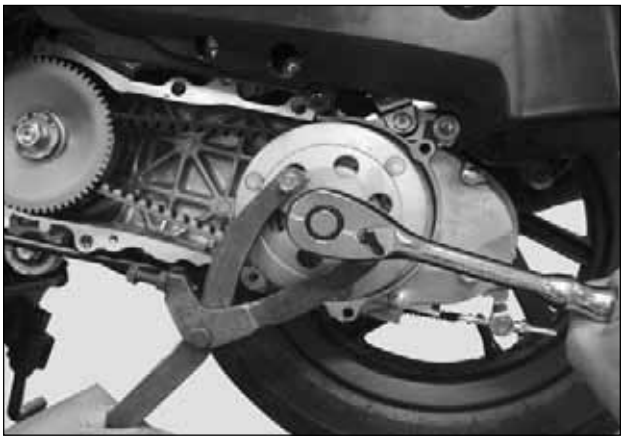
- Correctly match the drive pulley face and crank shaft serration when assembling.
- If the universal holder cannot be used, remove the cooling fan and hold the flywheel with the universal holder.



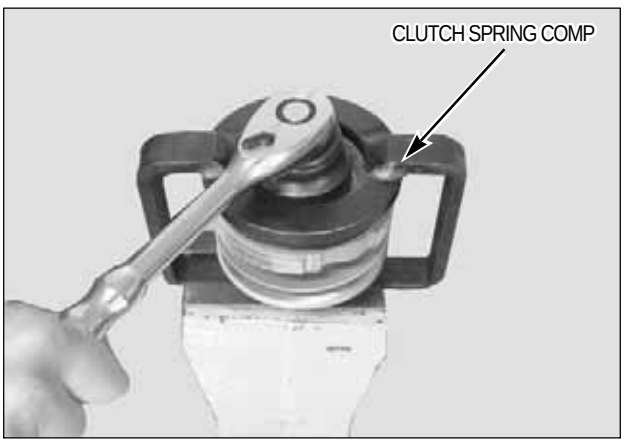
CLUTCH / DRIVEN PULLEY

DISASSEMBLY

- Remove the LH. side cover. (⇨7-2)
- Remove the start pinion gear.



- Hold the clutch outer using the universal holder and remove the flange nut, then remove the clutch outer.
- Remove the drive belt.
- Remove the driven pulley.
- Install in the reverse order of removal.



DRIVEN PULLY SUB ASS'Y

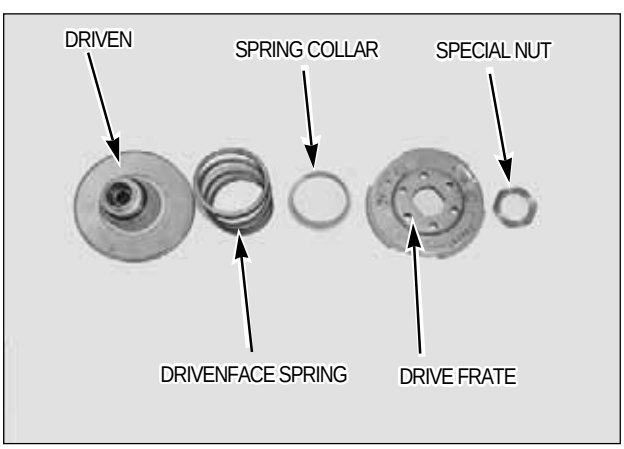
DISASSEMBLY

- The clutch/driven face are assembled toward the clutch spring compressor.

CAUTION

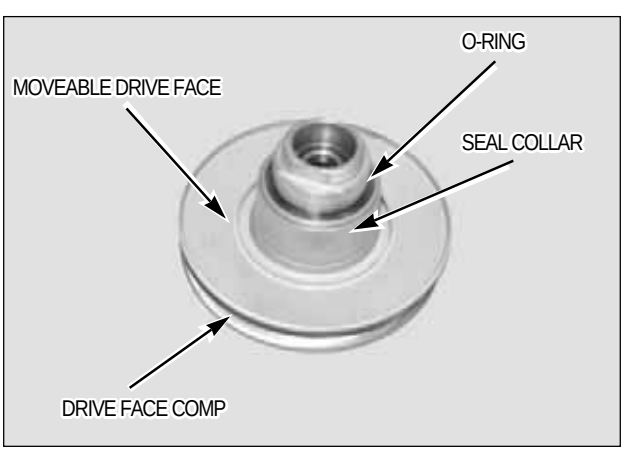
· Make sure that the boss portions of the clutch/driven face are matched with the clutch spring compressor hole.

TOOL : CLUTCH SPRING COMPRESSOR

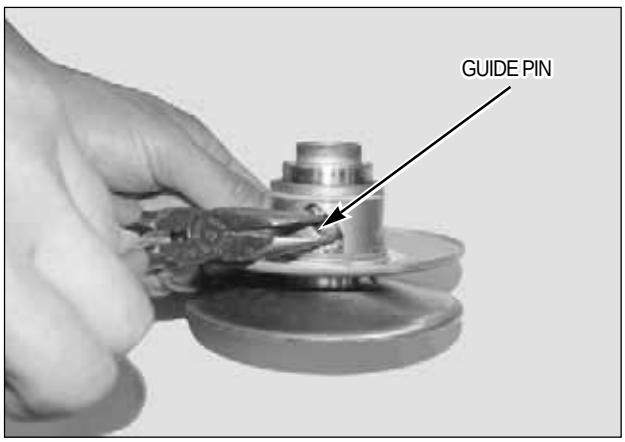


- Fix the clutch spring compressor with a vice, etc.
- Disassemble the 28mm special nut with a socket wrench. Disassemble the clutch driven face form the clutch spring compressor.

TOOL : CLUTCH SPRING COMPRESSOR
SOCKET WRENCH 39 ×41mm



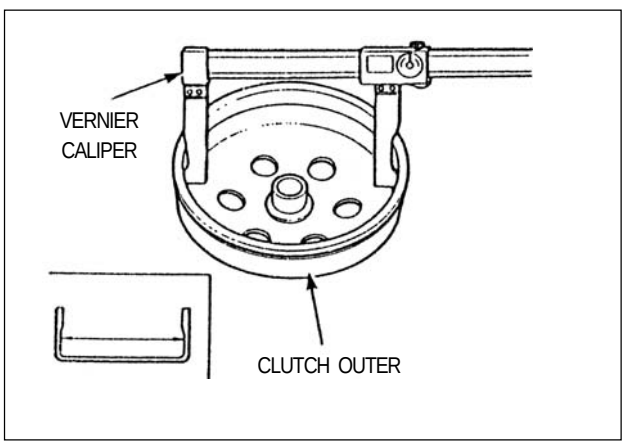
- Remove the seal collar from the driven pulley.
- Remove the guide pins and guide pin rollers and the movable driven pulley face.



NOTE

· Some guide pin can be separated to the roller and the pin.

● Remove the O-ring and oil seals from the movable driven face.

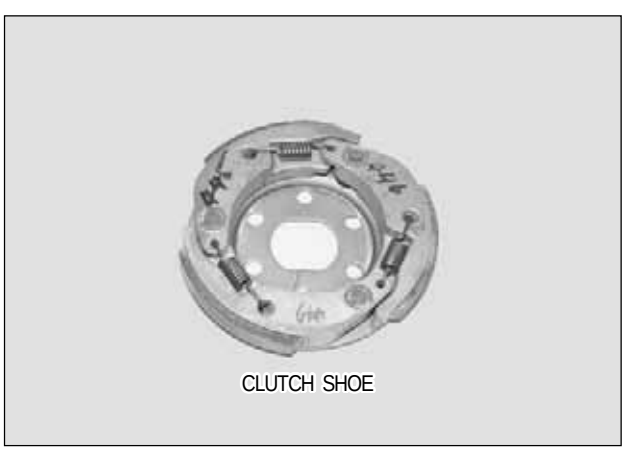


INSPECTION

Clutch outer

● Measure the I.D. at shoe contact surface of the clutch outer. Replace the outer if the service limit is exceeded.

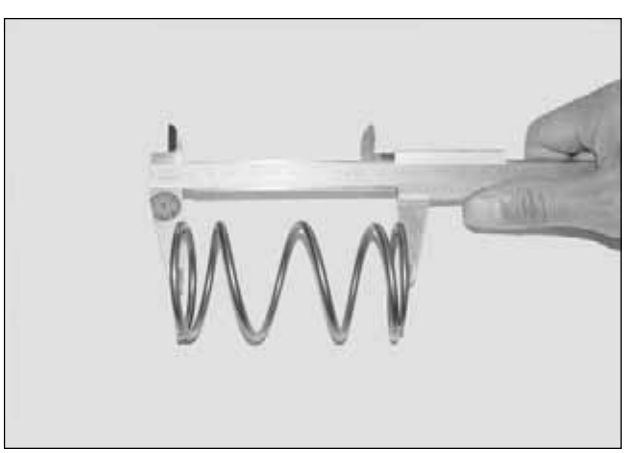
SERVICE LIMIT : 107.5mm



Clutch Shoe Inspection

● Measure the thickness of each shoe ; replace if the service limit is exceeded.

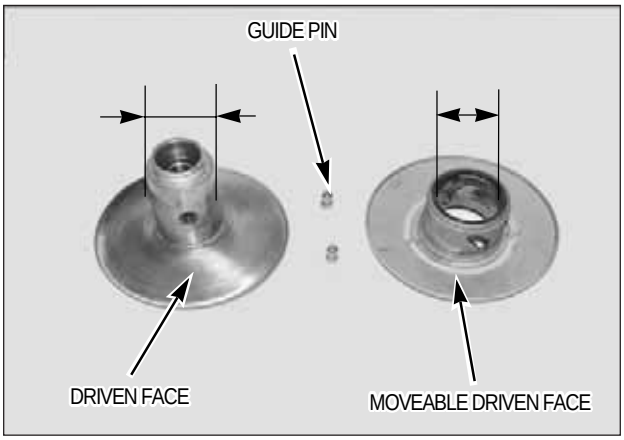
SERVICE LIMIT : 2.0mm



Movable Driven Face Spring Inspection

● Measure the free length of the driven pulley spring and replace if the service limit is exceeded.

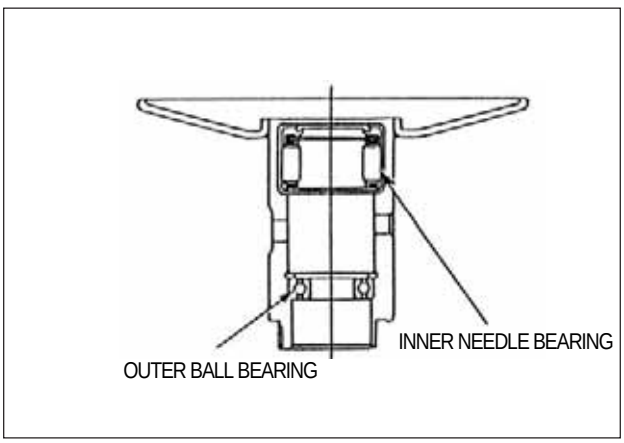
SERVICE LIMIT : 96.1mm



Driven Face Inspection

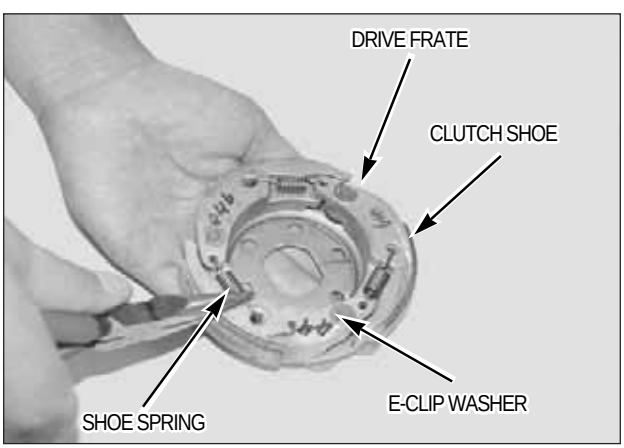
- Check the following;
  - Both faces for damage or excessive wear.
  - Guide pin groove for damage or deformation.
- Replace damaged or worn parts an necessary.
- Measure the O.D. of the driven face and the I.D. of the movable dirven face. Replace either part if the service limit is exceeded.

Driven face outer diameter service limit : 33.94mm
Movable driven face inner diameter service limit : 34.06mm



Driven Face Bearing Inspection

- Check the inner bearing oil seal (if installed) for damage; replace as necessary.
- Check the needle bearing for damage or excessive play and replace as necessary.
- Turn the inner race of the outer bearing with your finger. Check that the bearing turns smoothly and quietly, and that the bearing outer race fits securely. Replace the bearing if necessary.



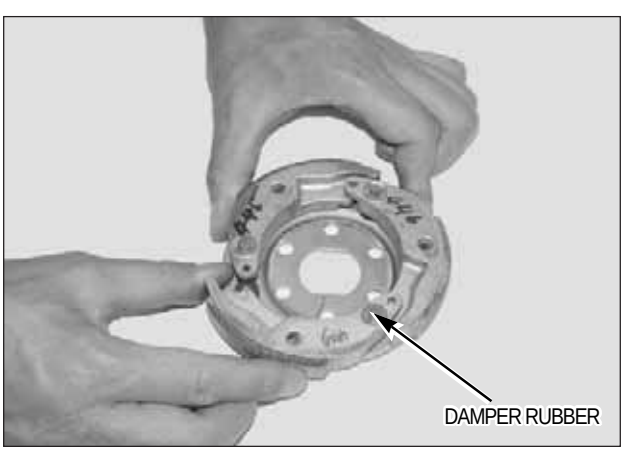
CLUTCH SHOE REPLACEMENT

- Remove the E-clip and washers, then remove the clutch shoes and shoe springs from the drive plate.

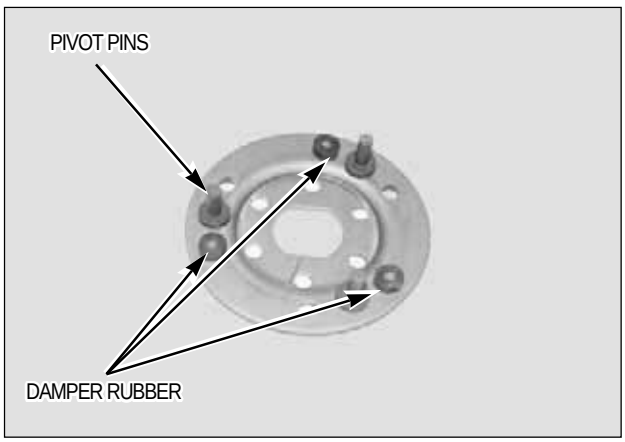
NOTE

· Some models use one retainer plate instead of three washers.

- Check the shoe springs for damage or loss of tension.



- Check the damper rubbers and shoe springs for damage or deformation; replace as necessary.



- Apply a small amout of grease on the pivot pins.
- Install new clutch shoes on the pivot pins and push them into place.
- Use a small amount of grease on the pivot pin and keep grease off of the brake shoes. Replace the brake shoes if there is any grease on them.

CAUTION

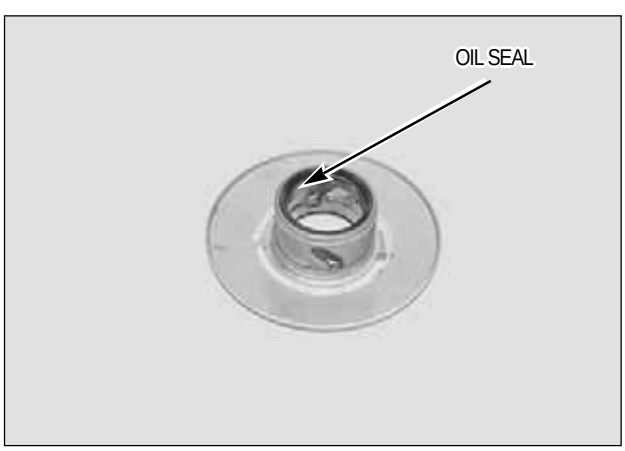
· Grease or oil damages chutch shoes and can lead to a loss of engaging ability.

- Use pliers to hook the springs to the shoes.
- Install the E-clip and washers or retainer plate into the pivot pins.

NOTE

· Apply only to the belt type gearless transmission.

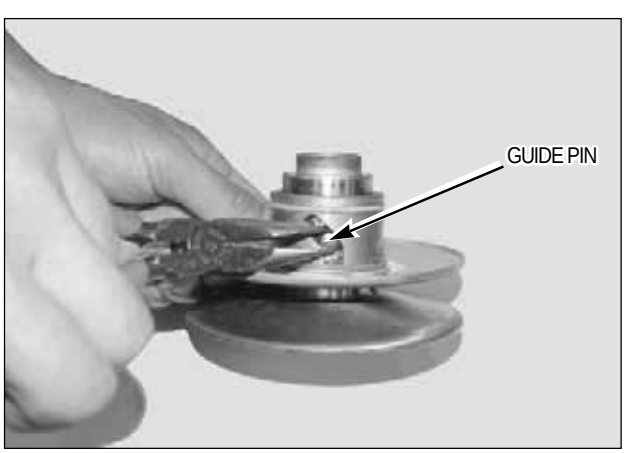
· Wipe the grease came out from the pivot pin thoroughly.



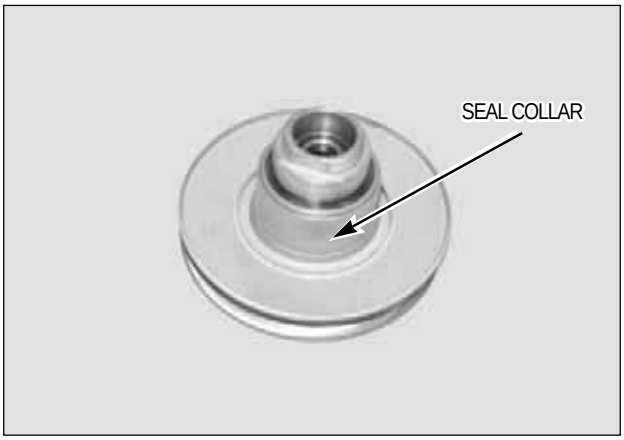
CLUTCH / DRIVEN PULLEY ASSEMBLY

- Install new oil seals and O-rings on the movable driven pulley face.
- Lubricate the inside of the movable face with the specified amount of grease.

GREASE APPLICATION : 5.0 ~ 5.5g



- Install the movable face on the driven pulley face.
- Install the guide pins, or guide pins and guide pin rollers.



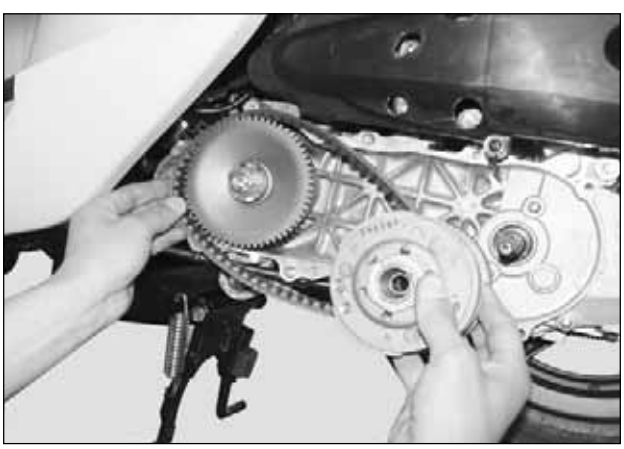
- Install the seal collar.

- Assemble the driven pulley, spring and clutch in the clutch spring compressor. Compress the assembly by turning the tool handle until the lock nut can be installed.
- Clamp the clutch spring compressor in a vise and tighten the lock nut to the specified torque using the lock nut wrench.

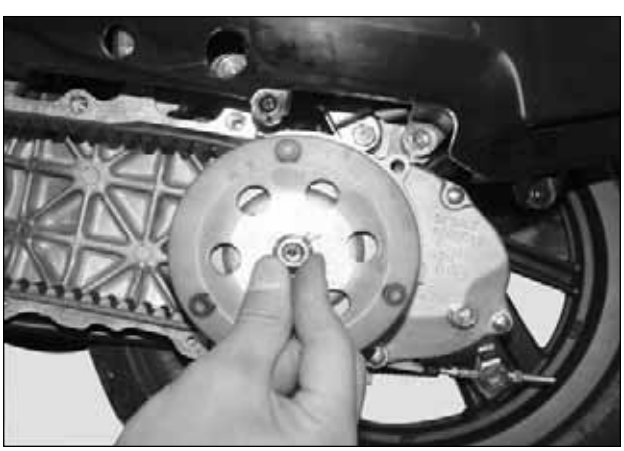
TORQUE VALUE : 4.0kgf · m

- Install the spring compressor.
- Install the clutch / driven pulley and drive belt onto the drive shaft.

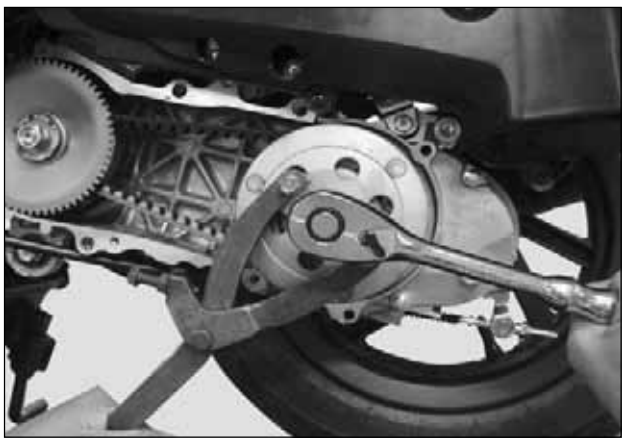
TOOL : CLUTCH SPRING COMPRESSOR
SOKET WRENCH 39mm



- Install the drive belt on the driven pully subass'y and mount on to the drive shaft.

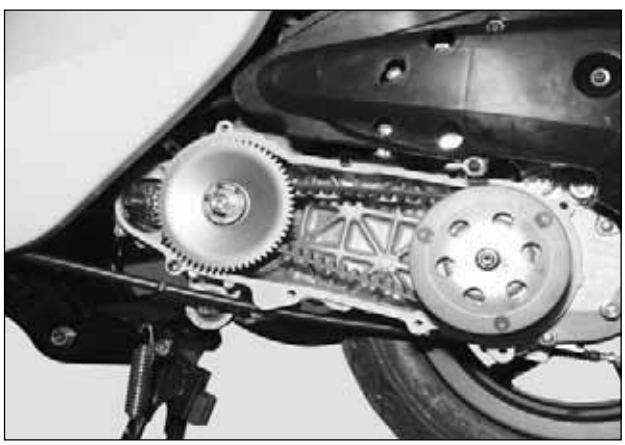


- Install the drive belt on the assemblying area of the movable drive face.
- Rotate the driven pully ass'y to the right side and enlarge the belt groove.



- After assemblying the clutch outer, install the flange nut temperarily.
- Fix the clutch outer with the universal holder, tighten the flangenut with standard torque.

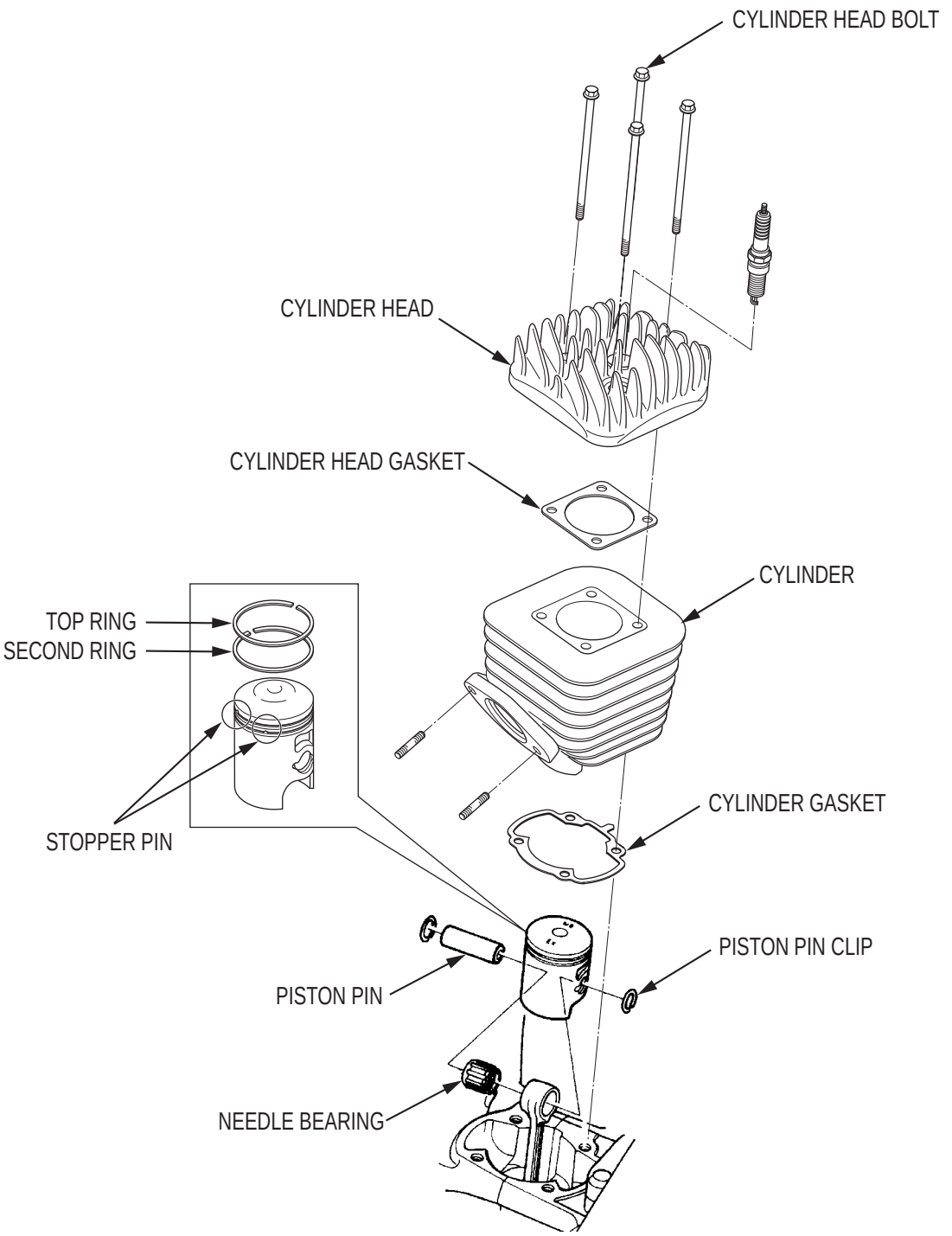
STANDARD TORQUE : 4.0kgf · m



- Install the 2 dowel pins and gasket.

- Install the LH. crank case cover and tighten the bolts.

MEMO


CYLINDER HEAD BOLT
CYLINDER HEAD
CYLINDER HEAD GASKET
CYLINDER
TOP RING
SECOND RING
STOPPER PIN
CYLINDER GASKET
PISTON PIN CLIP
PISTON PIN
NEEDLE BEARING

8. CYLINDER HEAD / CYLINDER / PISTON

SERVICES INFORMATION · · · · · · · · · 8-1
TROUBLESHOOTING · · · · · · · · · · · 8-1
FAN COVER, SHROUD REMOVAL · · · · · 8-2
CYLINDER HEAD / CYLINDER / PISTON · · 8-2

SERVICE INFORMATION

GENERAL SAFETY

- Take precautions not to damage the joint part with a driver when removing the cylinder, or not to damage the cooling pin by striking the cylinder too hard.
- Take precautions not to damage the inside of the cylinder or the exterior part of the piston.
- Check parts after disassembling, and clean and dry with an air hose prior to taking measurements.

SPECIFICATIONS

Unit : mm

ITEM		STANDARD VALUE	SERVICE LIMIT
CYLINDER	Inner diameter	ø40.005~40.010mm	40.05mm
	Cylindricality	-	0.10mm
	Out of roundness	-	0.10mm
PISTON, PISTON PIN, PISTON RING	Piston skirt outer diameter	39.955~39.970mm	39.90mm
	Piston pin hole inner diameter	12.002~12.008mm	12.03mm
	Piston pin outer diameter	11.994~12.000mm	11.98mm
CYLINDER TO PISTON CLEARANCE		0.040~0.055mm	0.13mm

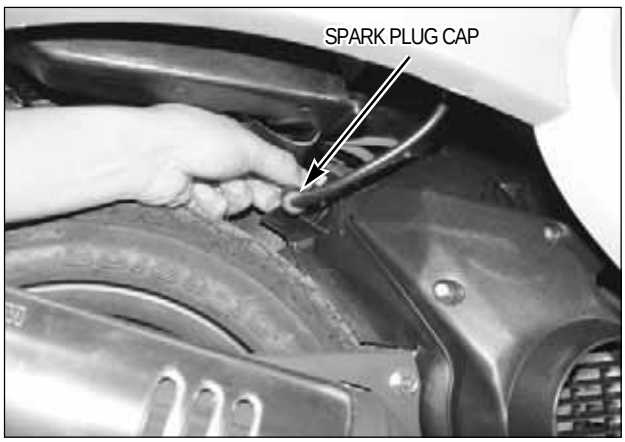
TROUBLESHOOTING

Comperssion low
- Worn cylinder or piston rings
- Leaking valve seats

Excessive smoke
- Worn cylinder or piston
- Improper installation of piston rings
- Scored or scratched piston or cylinder wall

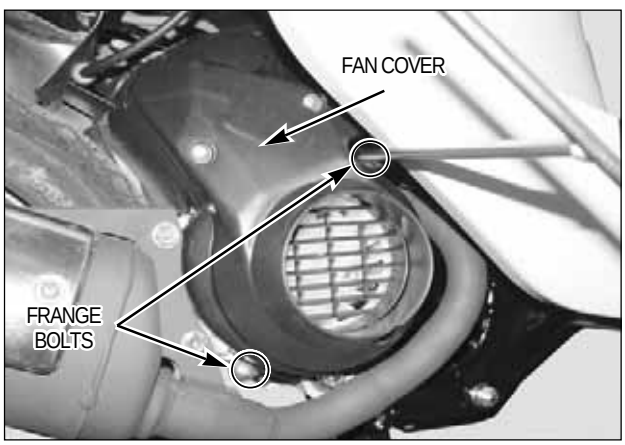
Overheating
- Excessive carbon build-up on the piston combustion
- Incorrect spark plug

Knocking or abnormal noise
- Worn piston and cylinder
- Excessive carbon build-up
- Low octane fuel

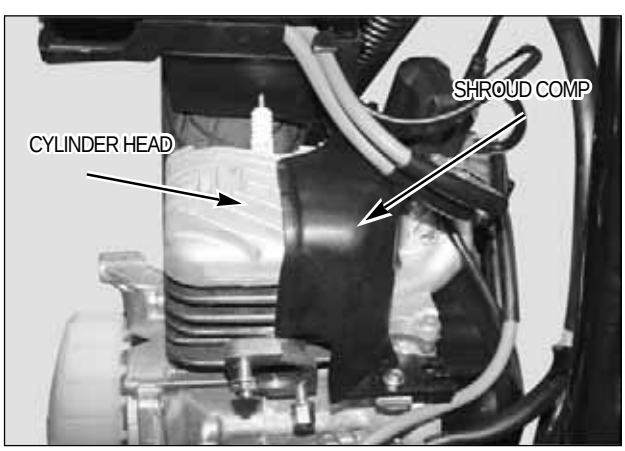


FAN COVER, SHROUD REMOVAL

- Remove the plug cap.
- Remove the 2 flange bolts of fan cover comp.
- Remove the fan cover.



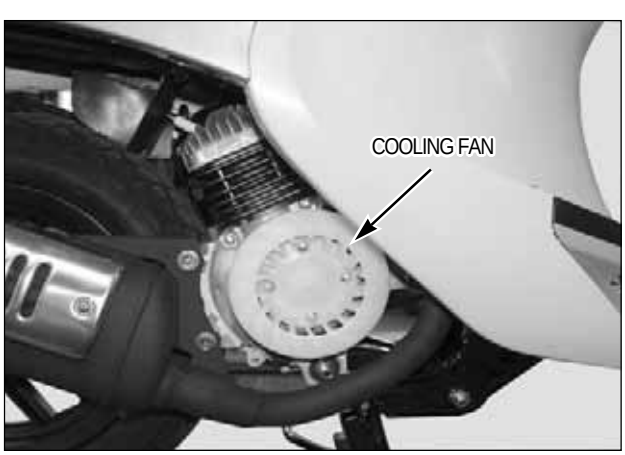
- Loosen the 2 fan cover flange bolts.
- Loosen the 2 flange bolts of shroud comp.
- Remove the shroud comp.



NOTE

- Pay attention not to damage certain part when removing.
- Remove according to the working precedure.

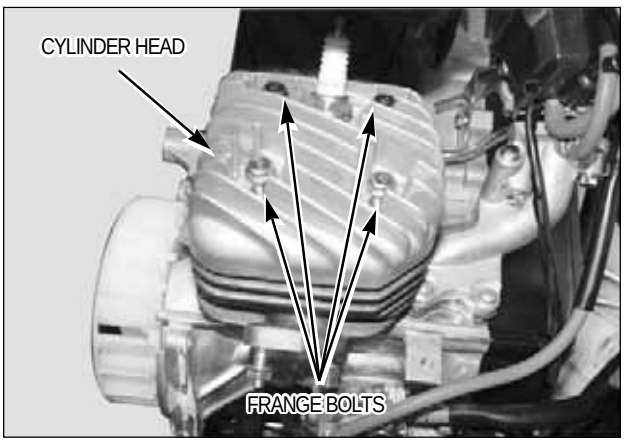
- Install in the reverse order of romoval.



CYLINDER HEAD / CYLINDER / PISTON

REMOVAL

- Remove the luggage box.(⇨3-3)
- Remove the exhaust muffler assembly.(⇨3-7)
- Remove the fan cover / shroud.



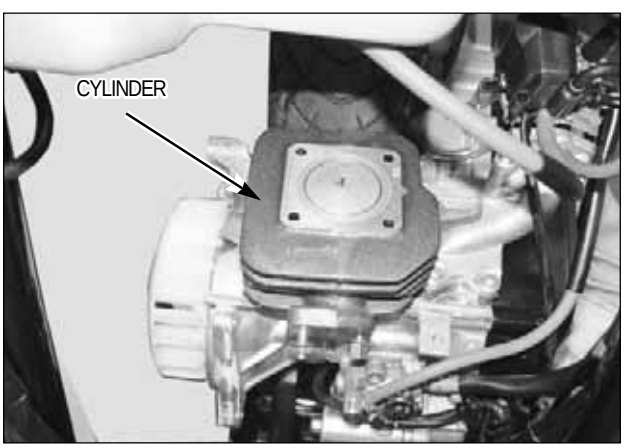
Cylinder head

- Loosen the 4 cylinder head bolts.

NOTE

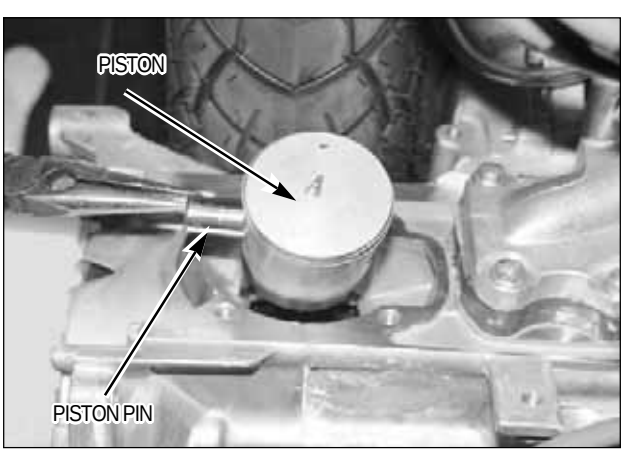
· Bolts are loosened by rotating 2~3 times and alternating to a diagonal bolt.

- Remove the cylinder head.
- Remove the cylinder head gasket.



Cylinder

- Remove the cylinder.



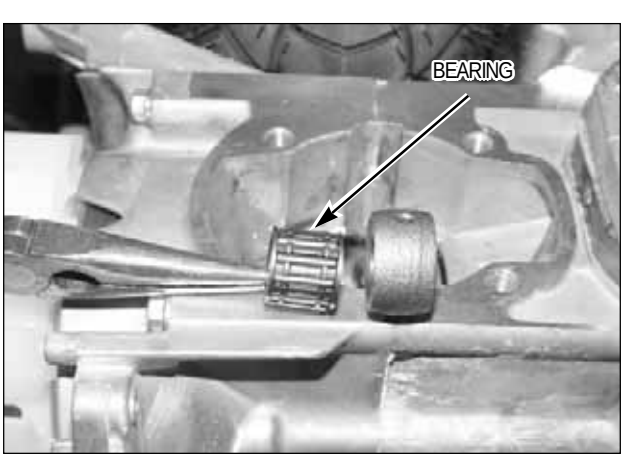
Piston / Piston Ring

- Remove the piston pin clip.
- Remove the piston pin.

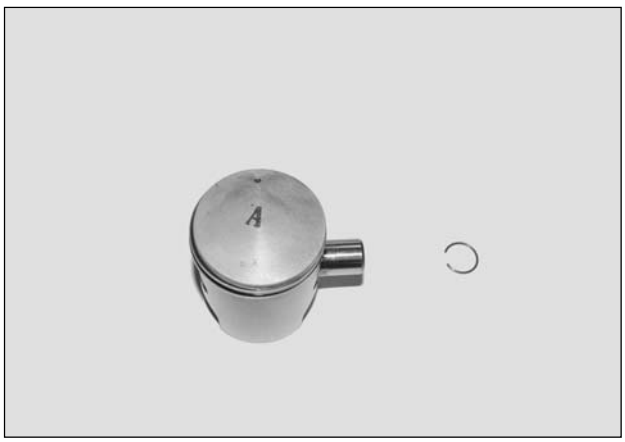
NOTE

· Be careful not to bend pins.

· Be careful not to damage the cylinder and crankcase gasket face when cleaning.

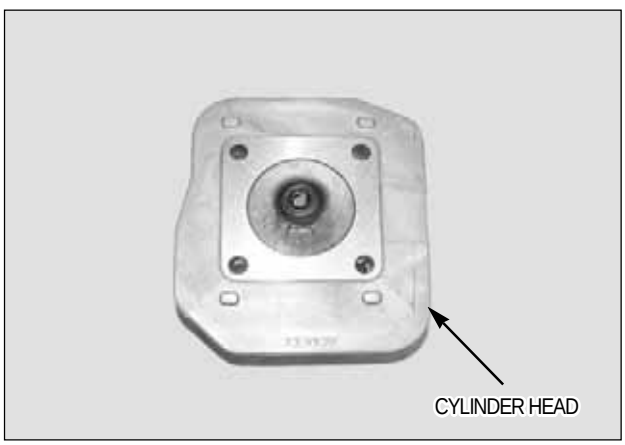


- Remove the piston.
- Remove the needle bearing from the small end of the connecting rod.



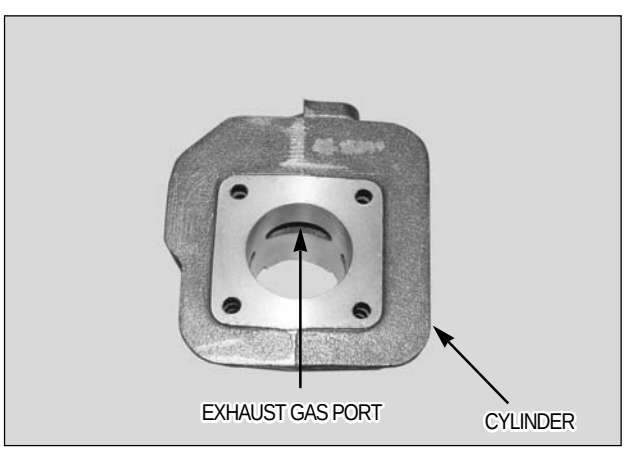
NOTE

- Do not damage or scratch the piston.
- Do not apply side force to the connecting rod.
- Do not let the clip fall into the crankcase.
- Mark and store the pistons and piston pins so that they can be reinstalled in their original positions.



INSPECTION

- There is more carbon deposit whitin the engine in case of 2 cycle engine than 4 cycle engine because the engine oil is burnt in the 2 cycle engine. Excessive carbon deposit may cause self-ignition by the zoverheating of the carbon in the combustion chamber and the piston head and may damage the engine.
- Carbon deposit in the exhaust gas port disturbs exhaust gas flow and causes decrease of the output. Remove the carbon deposit periodically.



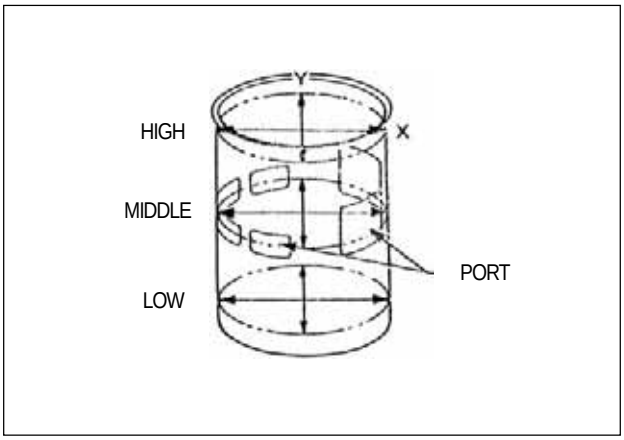
CAUTION

- Pay attention not to damage the combustion chamber, the piston and the cylinder when removing the carbon.

- Remove the cylinder head and remove the carbon with the piston being in the top dead center.
- Dismount the cylinder, remove the carbon deposited in the exhaust gas port and clean the remaining carbon in the cylinder.

Cylinder Wear Inspection

- Inspect the cylinder wall for scratches and wear.
- Inspect the area near T.D.C (Top Dend Center) carefully. This area is especially subject to wear due to the possibility of borderline lubrication from heat and top ring compression.



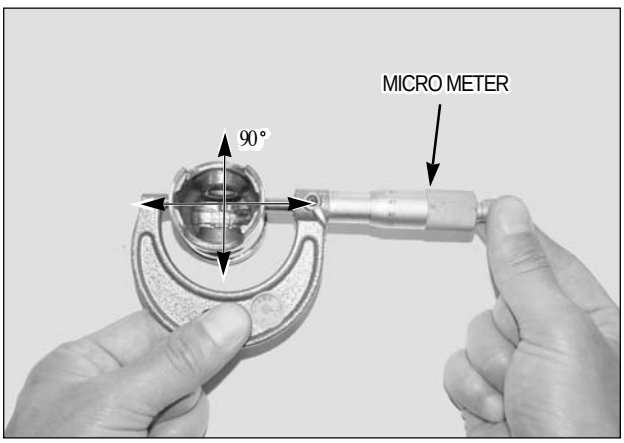
- Measure and record the cylinder I.D. at the three levels in both an X and Y axis.
- Take the maximum reading to determine the cylinder wear.

NOTE

· Avoid the intake and exhaust ports when measuring.

SERVICE LIMIT : 40.05 mm

- Calculate the piston-to-cylinder cleearance. Take the maximum reading to detemine the clearance.



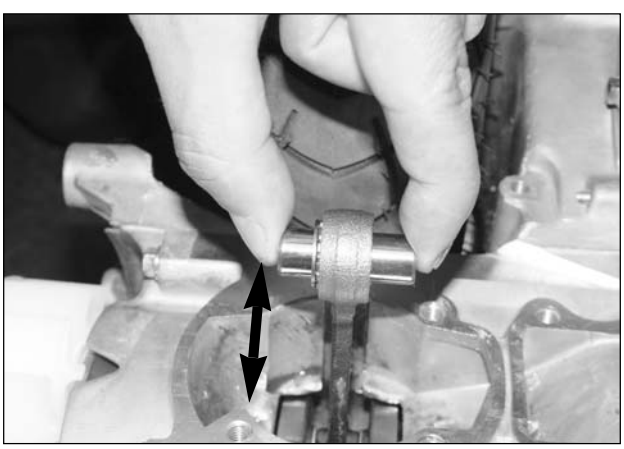
Piston Outer Diameter Inspection

- Measure and record the piston O.D. 90℃ to the piston pin bore and at the point specified in the Model Spectific manual, near the bottom of the piston skirt.
- Replace the piston if the service limit is exceeded.

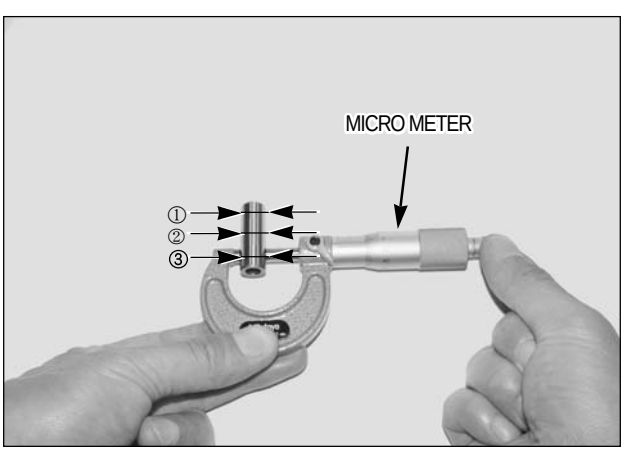
SERVICE LIMIT : 39.90 mm

- Measure clearance between the piston O.D. and the cylinder I.D.

SERVICE LIMIT : 0.13 mm



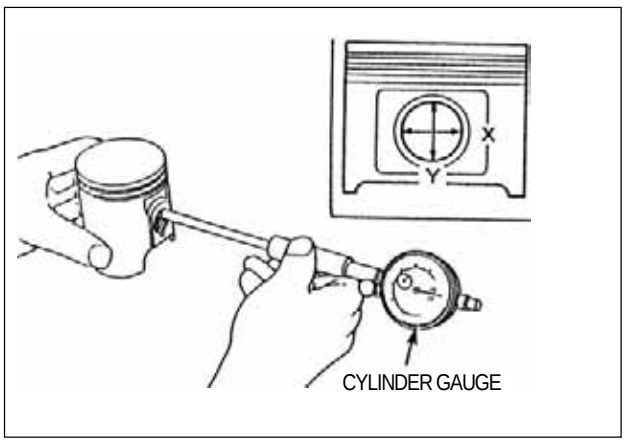
- Install the needle bearing and piston pin in the connecting rod small end and check for excessive play.



Piston Pin Inspection

- Measure the piston pin O.D. at three points.
- Replace the piston pin if the service limit is exceeded.

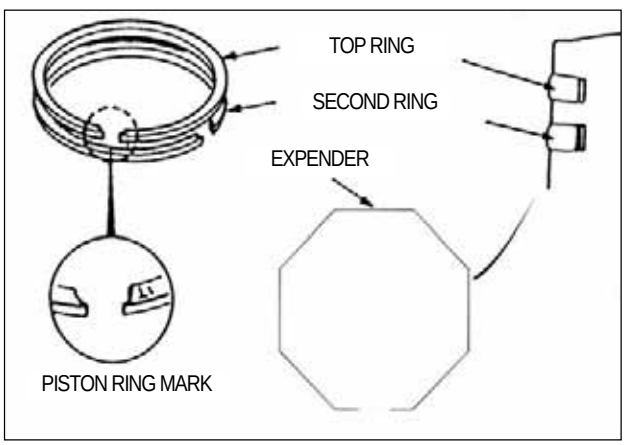
SERVICE LIMIT : 11.98 mm



Piston Pin Bore Inspection

- Measure the piston pin bore I.D. in an X and Y axis. Take the maximum reading to determine the I.D.
- Replace the piston if the I.D. is over the service limit.

SERVICE LIMIT : 12.03 mm

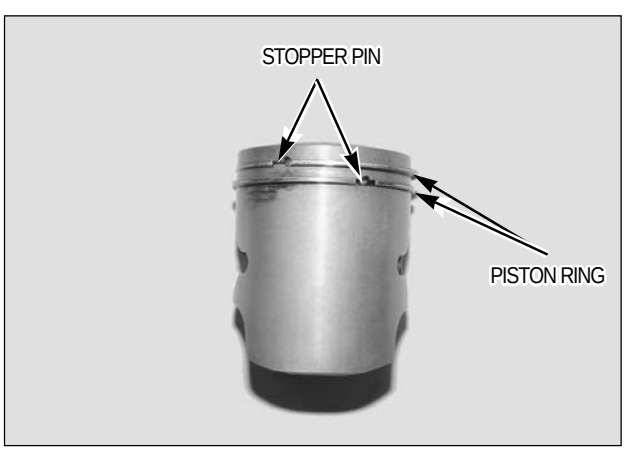


PISTON/PISTON RING INSTALLATION

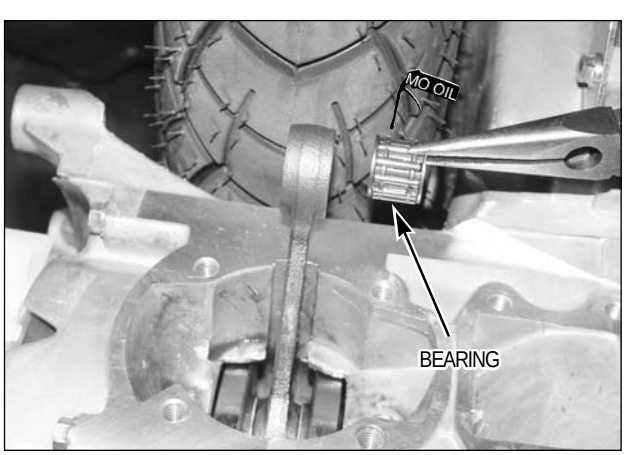
- Clean the piston ring grooves.
- Lubricate the piston rings and ring grooves with clean 2-stroke oil.
- Install the piston rings on the piston with the marks facing up.

NOTE

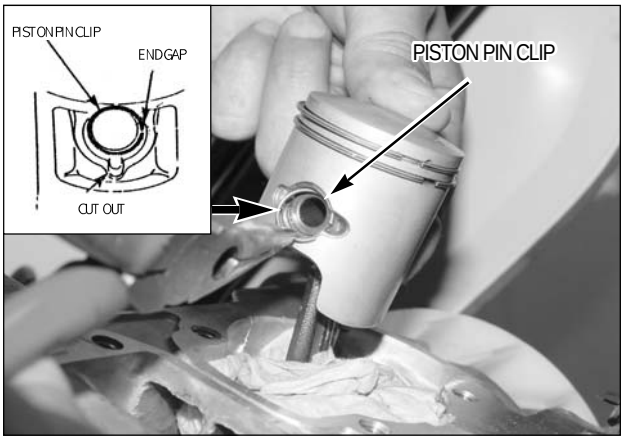
- Do not confuse the top and second rings. Be sure to install them in the proper grooves.
- Some 2-stroke engines use an expander ring behind the second ring.



- In 2-stroke engines, the piston has stopper pins that hold the piston rings away from te intake and exhaust ports.
- Align the piston ring end gaps with the stopper pins.
- Check the fit of each ring in the groove by pressing the ring into the groove. Make sure that it is flush with the piston at several points around the ring.
- If the ring rides on the stopper pin, it is damaged during assembly.



- Coat the needle bearing (2-stroke engine only) and piston pin with the recommended oil. Lubricate the piston pin.
- Install the needle bearing into the connecting rod.
- Install the piston and insert the piston pin.



NOTE

- The mark that is stamped on the piston head should be facing the correct direction.
  "●" MARK : TO INTAKE SIDE
  "EX" MARK : TO EXHAUST SIDE
  "△" MARK : TO ONGOING SIDE
  "↓" MARK : TO INTAKE SIDE

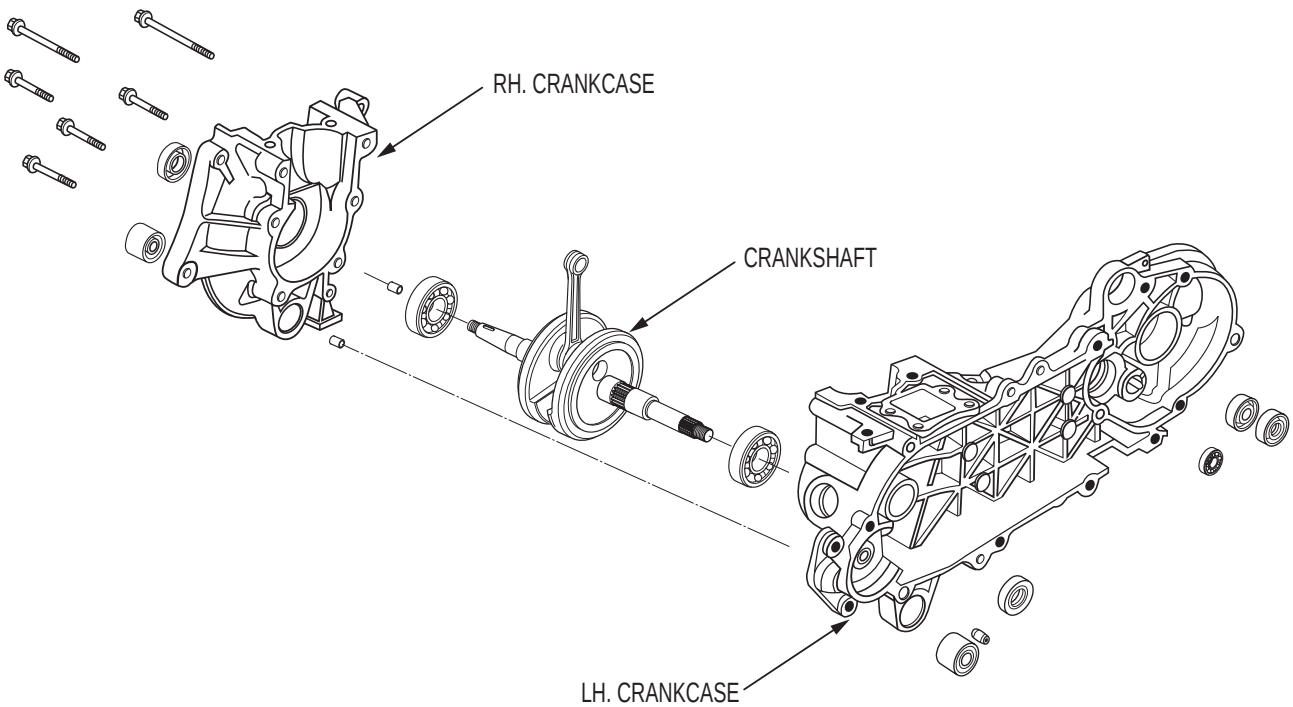
● Install the new piston pin clips.

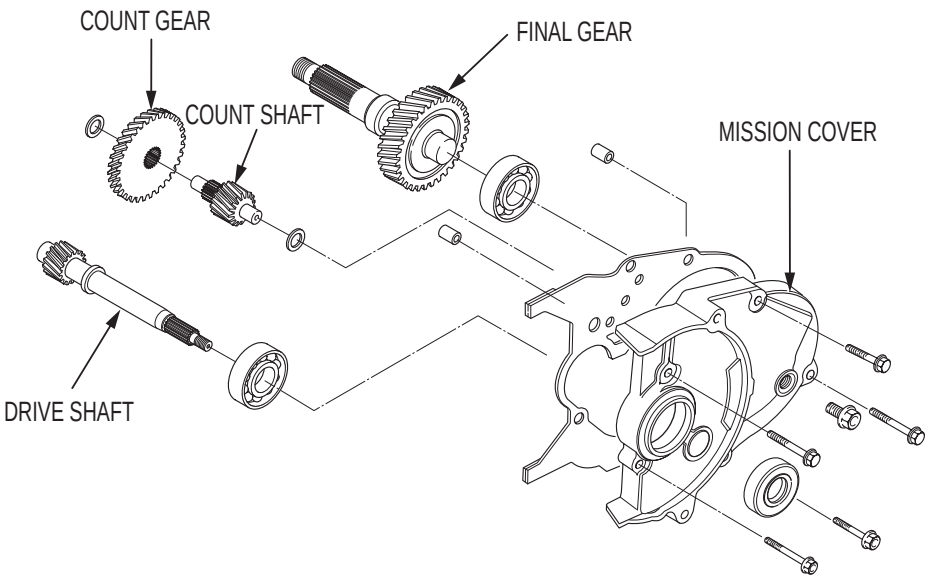
CAUTION

- Take care not to drop the piston pin clip into the crankcase.
- Make sure to set the piston pin clip in the groove properly.
- Do not align the clip's end gap with the piston cutout.

CYLINDER / CYLINDER HEAD INSTALLATION

● Apply the engine oil inside of cylinder piston ring and install them.


RH. CRANKCASE
CRANKSHAFT
LH. CRANKCASE


COUNT GEAR
FINAL GEAR
COUNT SHAFT
MISSION COVER
DRIVE SHAFT

9. TRANSMISSION/CRANKSHAFT/CRANKCASE

SERVICE INFORMATION · · · 9-1
SERVICE STANDARD · · · · 9-1
TRANSMISSION/CRANKSHAFT/ CRANKCASE · · · · · · · · 9-2
CRANKSHAFT REMOVAL · · · · 9-5
CRANKSHAFT BEARING REMOVAL · 9-5
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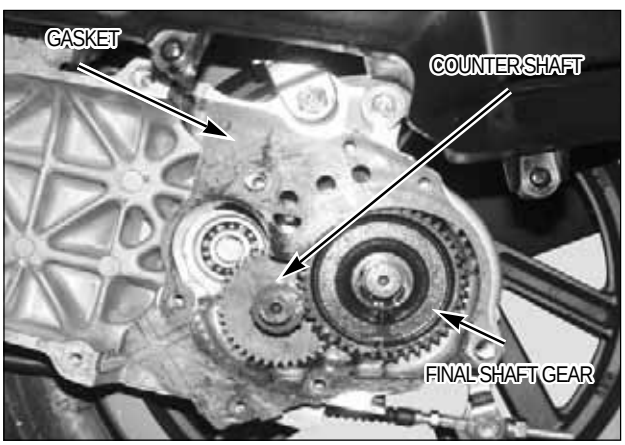
SERVICE INFORMATION

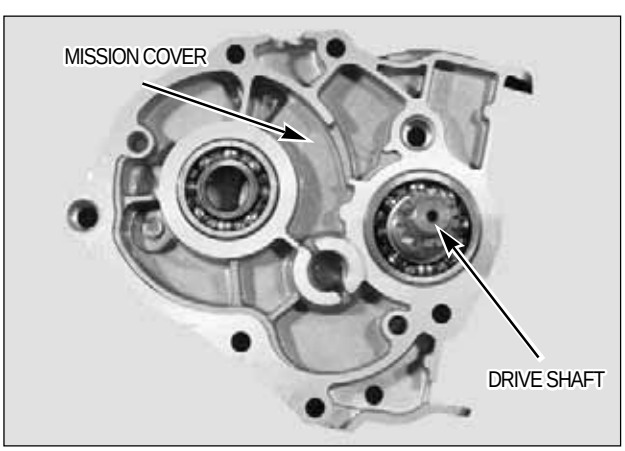
GENERAL SAFETY

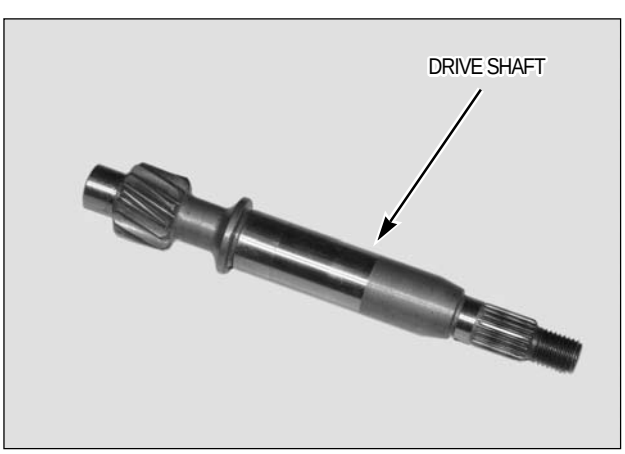
- This section describes how to remove the crank case and to maintain the transmission and the crankshaft.
- Always use special tools to change the drive shaft. Fix the bearing inner race, and install the shaft.
- The following parts must be removed prior to removing the crank case. Follow the removal procedure spcified in each section.
  - OIL PUMP (⇨SECTION 4)
  - CARBURETOR (⇨SECTION 5)
  - ENGINE (⇨SECTION 6)
  - CYLINDER HEAD / CYLINDER / PISTON (⇨SECTION 8)
  - AC GENERATOR (⇨SECTION 13)
  - DRIVE PULLEY (⇨SECTION 7)
  - CLUTCH/DRIVEN PULLEY (⇨SECTION 7)
  - REED VALVE (⇨SECTION 5)
- The following parts must be removed prior to changing the. L. crank case. Follow the removal procedure specified in each section.
  - TRASMISSION (⇨SECTION 9)
  - REAR BRAKE (⇨SECTION 12)
- To assemble the crank case and crankshaft, set the special tool to the inner race of the crankshaft beaaring, and push and assemble. Remove the bearing from the crankshaft during disassembling work, and insert a new bearing in the case. Install the oil seal after the case is assembled.

SERVICE STANDARD

ITEM			STANDARD VALUE	SERVICE LIMIT
CRANK SHAFT	Large end side clearance		0.15~0.55mm	0.60mm
	Connecting rod large end right angle direction clearance		0.010~0.02mm	0.04mm
	Crank shaft shaking	Right	0.03mm	0.10mm
		Left	0.05mm	0.15mm







TRANSMISSION/CRANKSHAFT/ CRANKCASE

DISASSEMBLY

- Remove the LH. side cover. (⇨7-2)
- Remove the continuously variable transmission. (⇨SECTION 7)
- Remove the exhaust muffler. (⇨3-7)
- Remove the rear wheel. (⇨11-3)
- Install the oil sump under the cover of transmission.
- Loosen the 5 transmission cover flange bolts.
- Drain the oil of transmission.
- Remove the transmission cover.

- Remove the final shaft gear.
- Remove the thrust washer.
- Remove the counter shaft.
- Remove the counter shaft gear.
- Remove the side washer.

- Remove the drive shaft from transmission cover with the press.

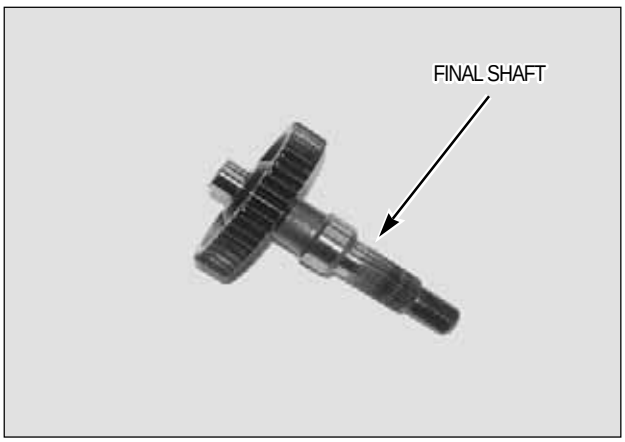
NOTE

· Take precautions not to damage the cover joints.

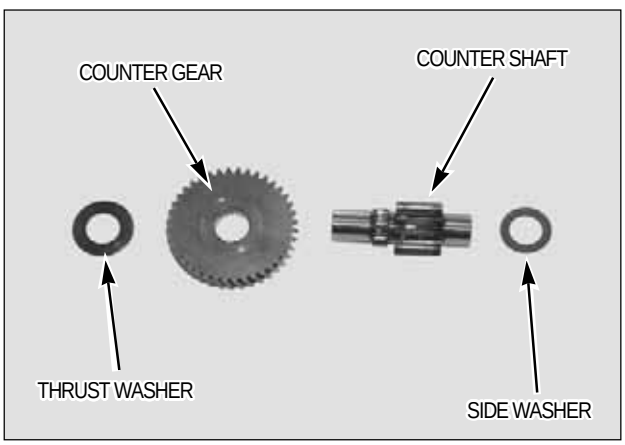
- Remove the oil seal of the drive shaft.

INSPECTION

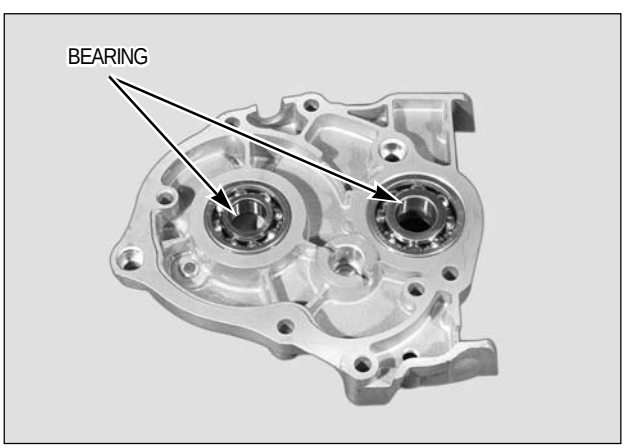
- Inspect the drive shaft for wear or damage.



● Inspect the final shaft for wear or damage.



● Inspect the counter shaft for wear or damage.

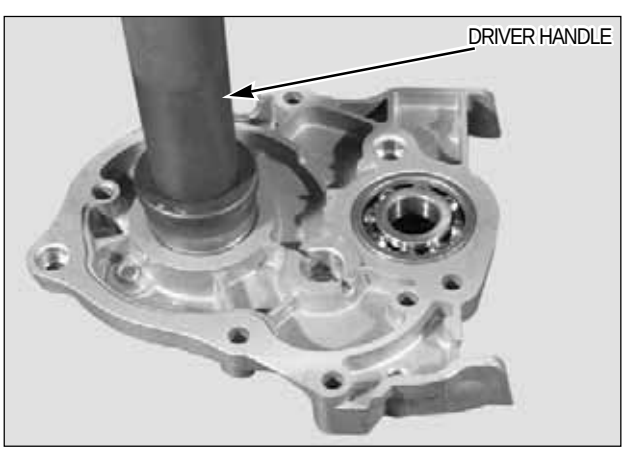


Bearing Inspection

● Manually turn the bearing inner race installed inside the transmission cover, and check if the race is turning smoothly.
● Verify the outer race is accurately installed in the case.
● Replace the bearing, if necessarry.

NOTE

· Install the bearing with the carved mark directing to the outside.



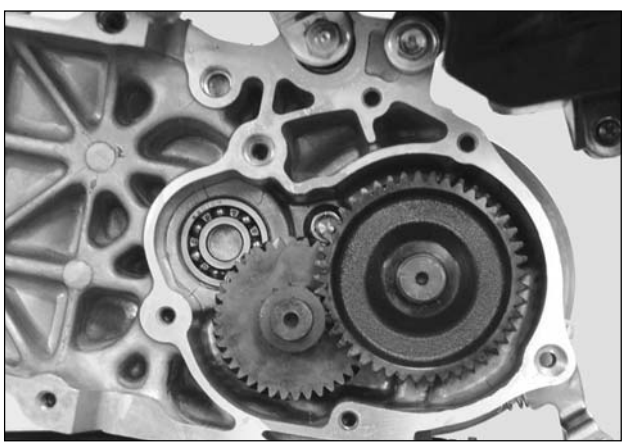
● Use special tools to push in the bearing into the case.

TOOLS : DRIVER HANDLE A
OUTER DRIVER 52 × 55 mm
DRIVER PILOT 20 mm

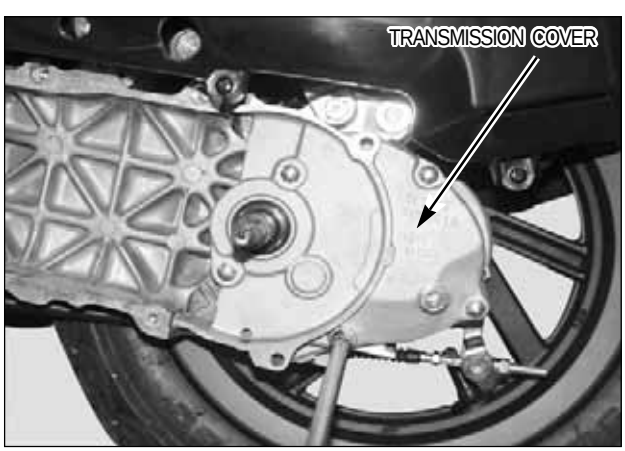
● Check the LH. crank case oil seal for wear or damage.

TRANSMISSION ASSEMBLY

- Install the drive shaft on the transmission cover.
- Install a new drive shaft oil seal.



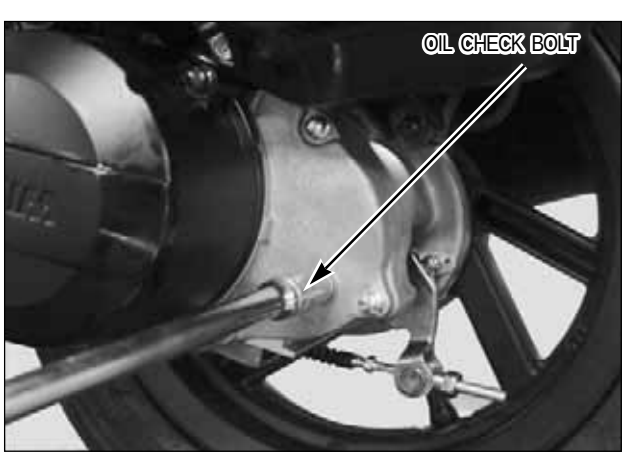
- Install the thrust washer, final gear and counter gear, side washer on the LH. crankcase.



- Install new dowel pins.
- Install a new transmission cover seal on the transmission cover.
- Install the transmission cover.
- Tighten the transmission cover with the flange bolts.

NOTE

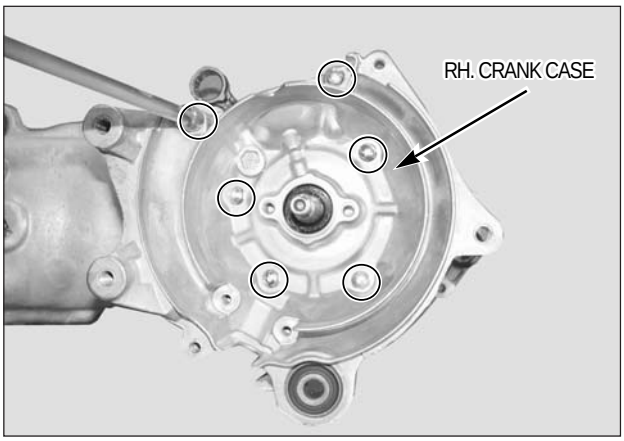
· Tighten bolts diagobally and alterntely and tighten with specified torque in the end.



- Remove the oil check bolt, release the transmission oil filler ACG cap or the LH. crankcase until the oil overflow through oil hole and fill the recommended oil slowly.
- Install the oil check bolt and the cap.

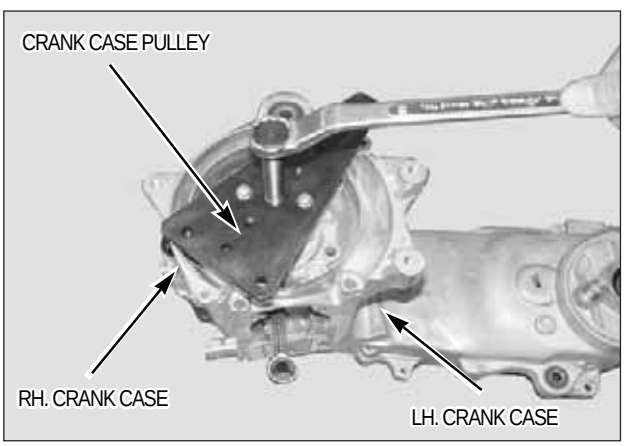
RECOMMENDED OIL : SAE #80~90
TRANSMISSION OIL AMOUNT : 0.09 ℓ

CRANKSHAFT REMOVAL



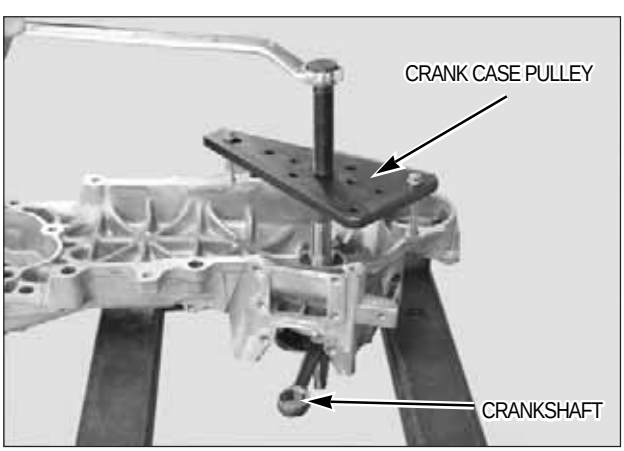
- Remove the engine from the Frame body.
- Loosen the 6 RH. crankcase flange bolts.
- Secure a crankcase puller on the RH. crankcase.
- Remove the RH. crankcase from the LH. crankcase.

TOOL : CRANKCASE PULLER (0751-00003)



- Secure a crankcase puller on the RH. crankcase.
- Remove the crankshaft from the RH. crankcase.

TOOL : CRANKCASE PULLER (0751-00003)



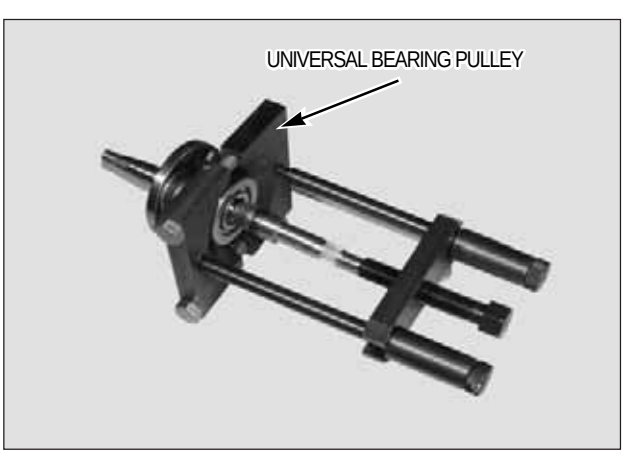
- Secure a crankcase puller on the LH. crankcase.
- Remove the crankshaft from the LH. crankcase.

TOOL : CRANKCASE PULLER (0751-00003)

NOTE

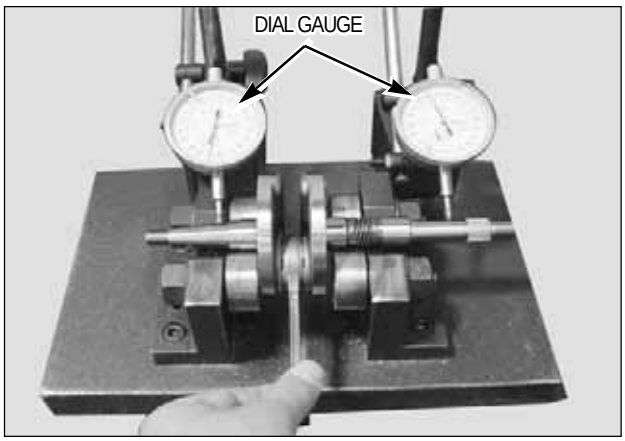
- Be careful not to distort the mating surface of the crank case during disassembly.
- Do not force to disassemble by pounding on the crankshaft.

CRANKSHAFT BEARING REMOVAL



- If the radial ball bearing is left on the crankshaft, remove the bearings out of the crankshaft using a bearing puller.

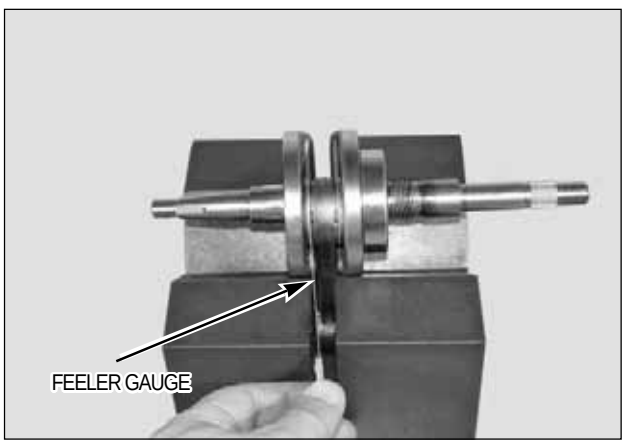
TOOL : UNIVERSAL BEARING PULLER (0755-00001)



CRANKSHAFT INSPECTION

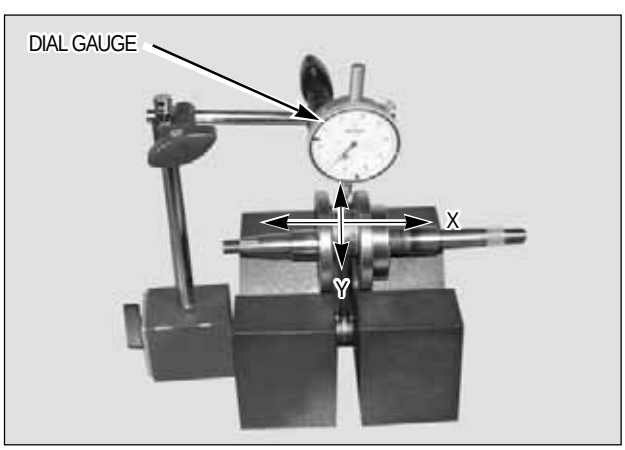
- Place the crankshaft on a stand or V-block, and check the journal vibration.

SERVICE LIMIT : RIGHT SIDE 0.1mm
LEFT SIDE 0.15mm



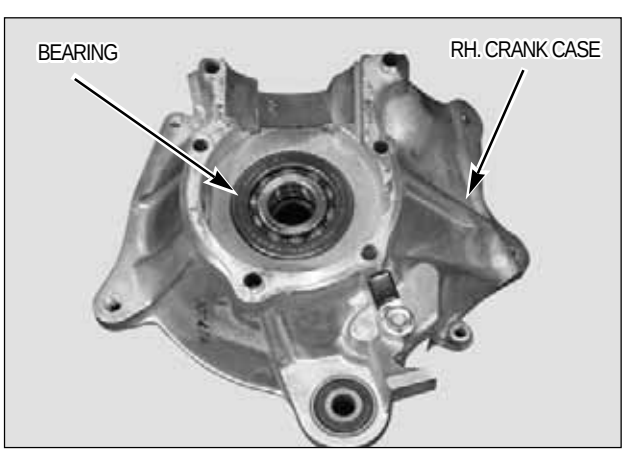
- Measure the side gap between the connecting rod big end and the crank weight.

SERVICE LIMIT : 0.6mm



- Check the vertical shaft play of the connecting rod big end from the X and Y direction.

SERVICE LIMIT : 0.05mm

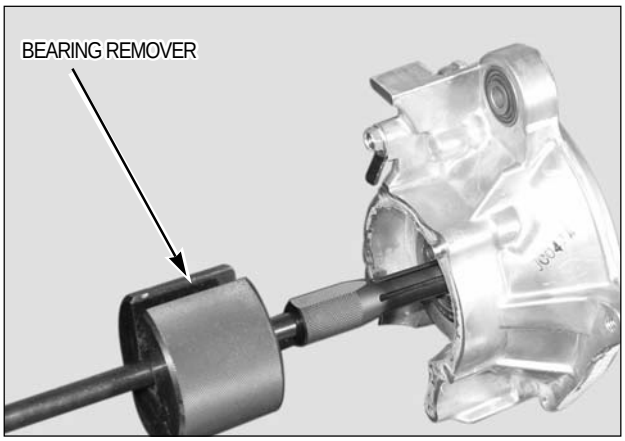


CRANKCASE BEARING REMOVAL

- Remove the RH/LH transmission.

INSPECTION

- Manually turn the bearing inner race to see if it rotates smothly.
- Check the outer race to see if it is accurately pressed into the case.
- If the outer race is excessively loose, or is loosely pressed into the case, remove in and replace with a new one.

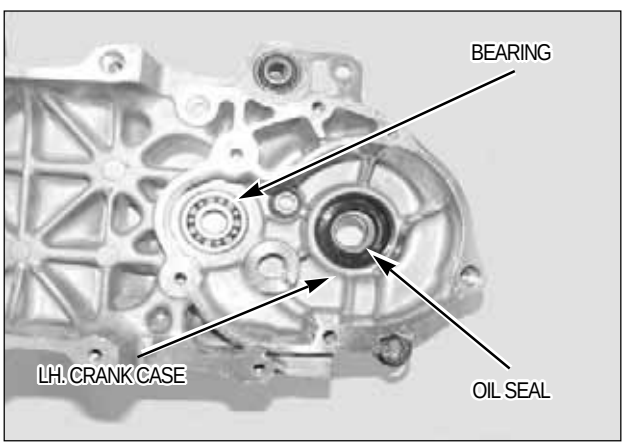


REPLACEMENT

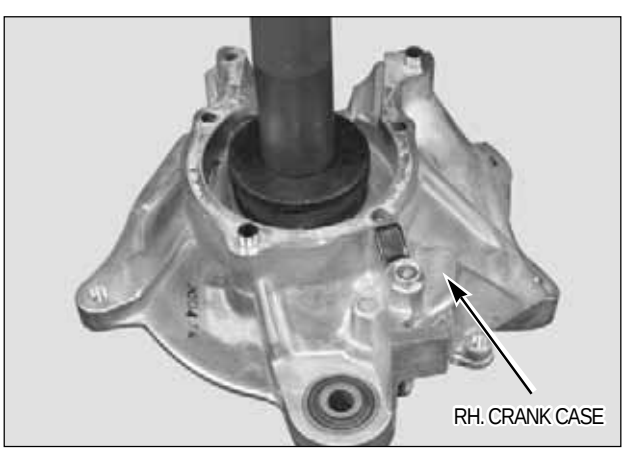
LH. Crankcase

- Use special tools to remove the drive shaft bearing.

TOOLS : BEARING REMOVER SET
REMOVER SHAFT
REMOVER HEAD



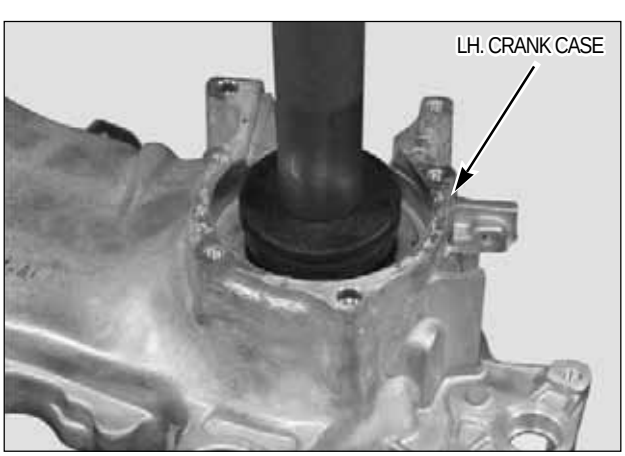
- Apply clean engine oil to a new bearing, and assemble it to the crank case.
- Install a new final gear oil seal.



CRANKSHAFT INSTALLATION

- Replace the bearing, if necessary.
- Apply clean engine oil to the new RH. crankshaft bearing, and press in the bearing into the RH. crank case.

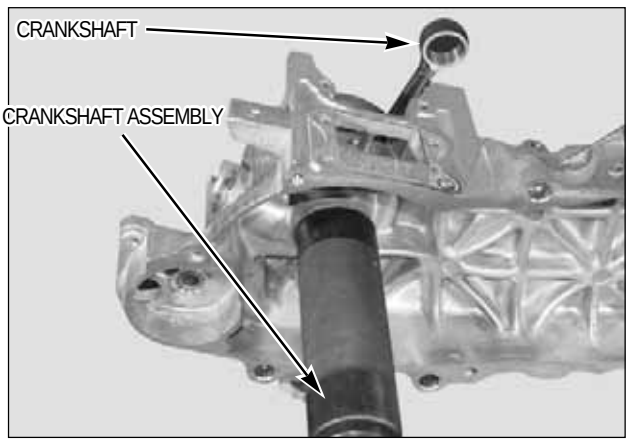
TOOLS : DRIVER HANDLE A
OUTER DRIVER 52×55mm
DRIVER PILOT 20mm

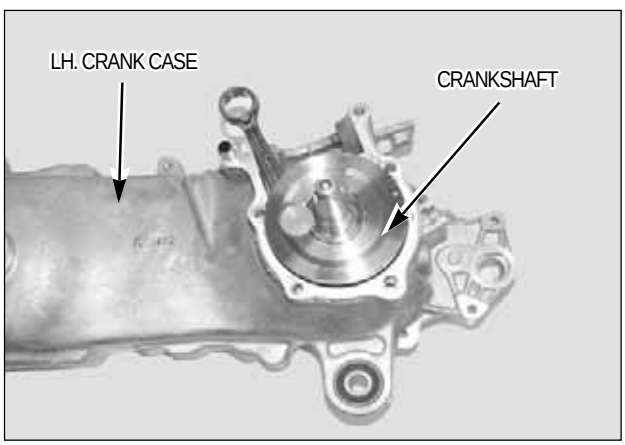


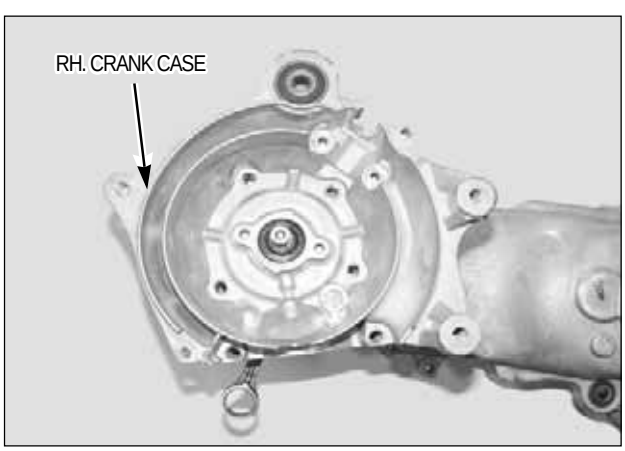
- Use special tools to assemble the crankshaft bearing to the LH. crank case.

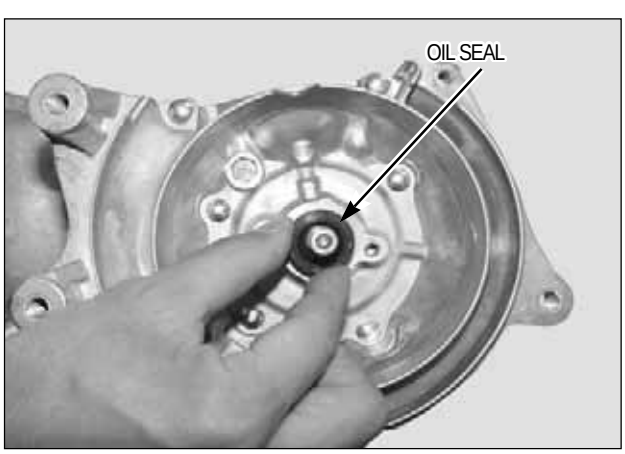
TOOLS : DRIVER HANDLE A
OUTER DRIVER 52×55mm
DRIVER PILOT 20mm

- Clean the crankcase using cleaning oil, and check for rack and damage to each area.









NOTE

- After removing the liquid gasket from the joining face of the crankcase, amend the scratched areas using oil ston.
- Apply 2-cycle oil to the radial ball bearings and the connecting rod large end portion.

● Install the crankshaft to the LH. crankcase.

NOTE

- Install not to interfere with the case with being careful of connecting rod location.

TOOL : CRANKSHAFT ASSEMBLER

● Apply a liquid gasket to the LH. crankcase joining face, install the dowel pins.
● Install the RH. crankcase.
● Install the 6 flange bolts.

NOTE

- Make sure that there is no adhesion of gasoline to the RH., LH. crankcase liquid gasket face.
- Do not apply excessive liquid gasket fluid excessively.

TOOL : CRANKSHAFT ASSEMBLER

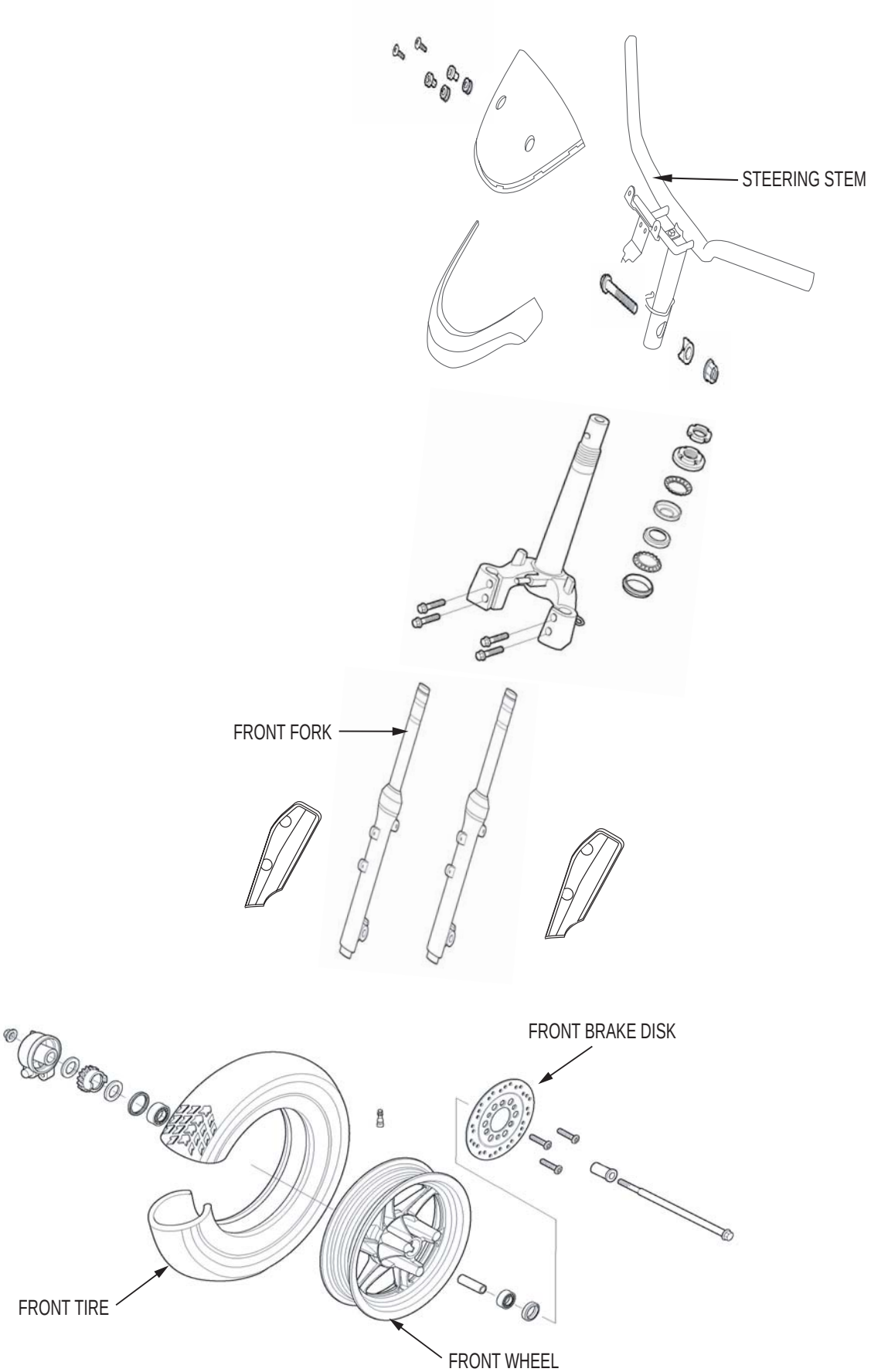
CAUTION

- Make sure that the crankshaft is rotated smoothly after installation (prior to oil seal installation).
- If the smooth rotation is not acquired, tap the crankshaft bearing part of crankcase with plastic hammer to ensure proper installation without mismatch.

● Install a new LH. oil seal in the crankcase end portion at 1.0mm depth.

● Install a new RH. oil seal in the crankcase end portion at 5.0mm depth.

MEMO


STEERING STEM
FRONT FORK
FRONT BRAKE DISK
FRONT TIRE
FRONT WHEEL

10. FRONT WHEEL/FRONT FORK/STEERING

SERVICE INFORMATION	10-1	FRONT WHEEL	10-5
SPECIFICATION	10-1	TUBELESS TIRE	10-9
TROUBLESHOOTING	10-2	FRONT FORK	10-14
STEERING HANDLE	10-3	STEERING STEM	10-19

SERVICE INFORMATION

GENERAL SAFETY

CAUTION

- Keep oil or brake fluid off the brake disk and pad because the contaminated brake disk and pad reduces the braking performance. If contaminated, replace the pad with a new one, and clean the disk.
- Use special tire levers and rim protectors to remove or assemble tires to protect the rim from being damaged.
- This section describes how to remove and maintain front wheels, front fork and steering system. For information on the front brake system, refer to section 10.
- Place a jack underneath the engine to support the 2-wheeled vehicle.

SPECIFICATIONS

ITEM		STANDARD VALUE	SERVICE LIMIT
FRONT AXLE DEFLECTION		-	0.2mm
FRONT WHEEL RIM RUNOUT	RADICAL	-	2.0mm
	AXIAL	-	2.0mm
FFRONT FORK TUBE DEFLECTION		-	0.2mm
FRONT FORK OIL LEVEL		58㎤	-
FORK SPRING FREE LENGTH		236.7mm	231.9mm

TORQUE VALUES

STEERING STEM LOCK NUT	7.0kg·m
BRAKE DISK BOLT	3.9kgf·m
FRONT AXLE NUT	6.0kgf·m

TROUBLESHOOTING

Hard steering

- Steering bearing adjustment nut too tight.
- Faulty steering stem bearings.
- Damaged steering stem bearings.
- Insufficient tire pressure.

Steers to one side or does not track straight

- Unevenly adjusted right and left shock absorbers.
- Bent front forks.
- Bent front axle : wheel installed incorrectly.

Front wheel wobbling

- Bent rim.
- Worn front wheel bearings.
- Faulty tire.
- Axle nut not tightened properly.
- Wheel out of balance.

Soft suspension

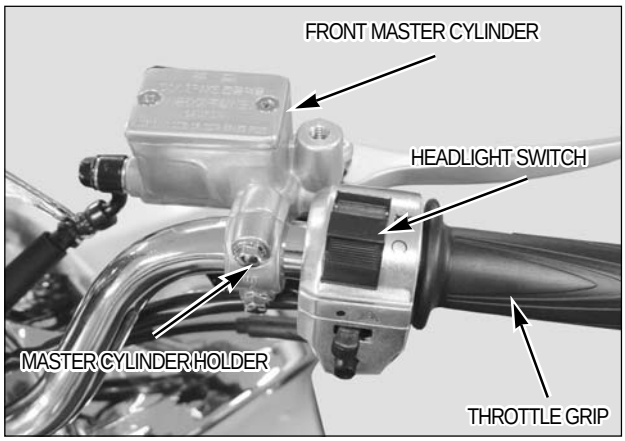
- Weak fork springs.
- Insufficient fluid in front forks.

Hard suspension

- Incorrect fluid weight in front forks.
- Front fork air pressure incorrect.
- Bent fork tubes.
- Clogged fluid passage.
- Clogged anti-dive orifice.

Front suspension noise

- Worn slider or guide bushings.
- Insufficient fluid in forks.
- Loose front fork fasteners.
- Lack of grease in speedometer gear box.



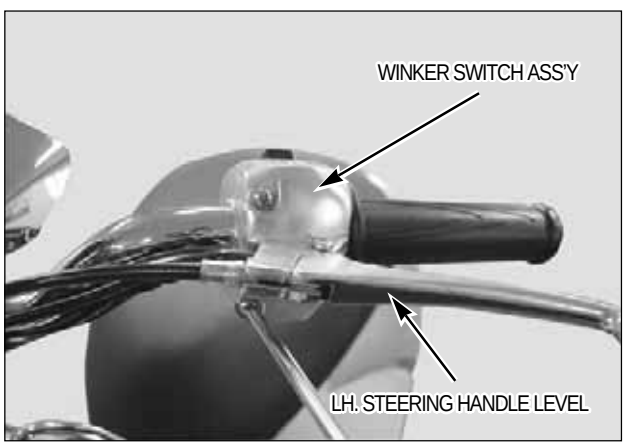
STEERING HANDLE

REMOVAL

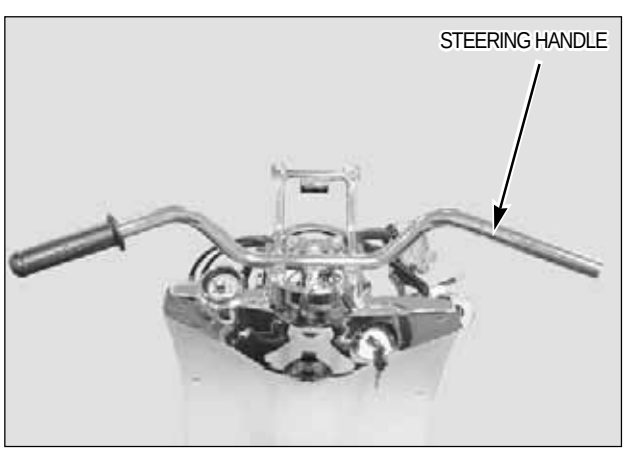
- Loosen the washer bolt of headlight switch.
- Remove the headlight switch.
- Remove the throttle grip.
- Loosen the 2 master cylinder hold bolts, and remove the master cylinder.

CAUTION

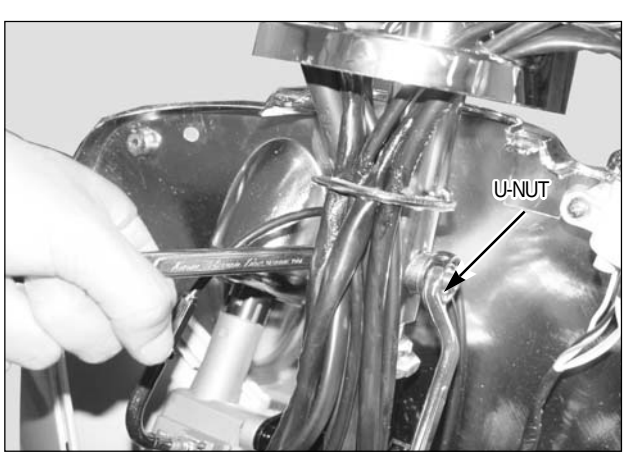
- Support master cylinder properly to prevent brake fluid from leaking.
- If the master cylinder is dropped upside down, air may enter the hydraulic system. Fix it to the vehicle while maintaining the correct assembled location.



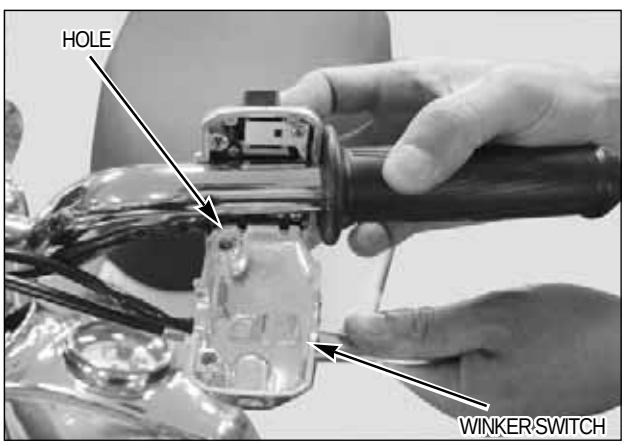
- Loosen the washer bolt of winker switch Ass'y.
- Romove the winker switch Ass'y.

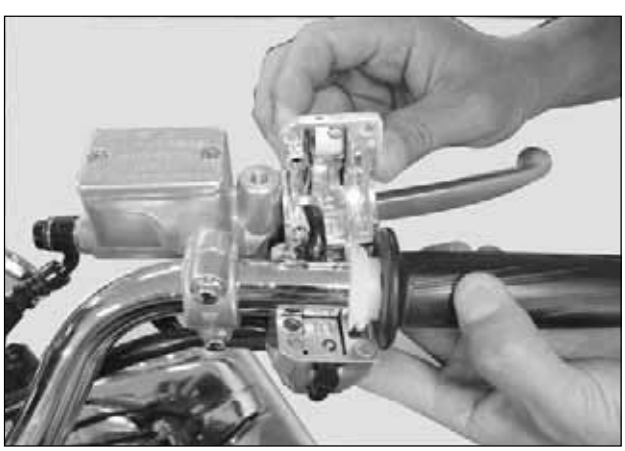


- Remove the wind screen.
- Remove the pilot box.
- Remove the speedometer.
- Remove the front cover.



- Loosen the handle setting U-nut, remove the handle set collar and flange bolt.
- Remove the rear brake cable, front brake hose, speedometer cable, handle cable from the guide.
- Remove the steering handle from the steering stem.





INSTALLATION

- Install steering handle to the steering stem.
- Install the handle setting bolt, U-nut, handle set collar.

NOTE

· When installing the handle setting collar, match it with the groove accurately.

TORQUE VALUE : 5.0kgf · m

- Install the rear brake cable, front brake hose, speedometer cable to the handle cable guide.
- Apply specified glue to the inside surface of the grip and to the clean surface of the left handle bar. Wait 3~6 minutes and install the grip.

NOTE

· Clean the bonding surface to avoid oil, grease or gasoline from attatching.
· Leave it for minimum 1 hour until the bond is dried.
· Use the bond according to the bond manual enclosed and install the grip while rotating it before the bond is dried completely.

- Align the positioning pin with the handle hole and install the L. handle bracket.

TORQUE : 1.2kgf · m

- Clean the throttle grip surface, apply the grease and install the grip.
- Connect the throttle cable to the groove of the grip.
- Tighten the pin screws after assembling.

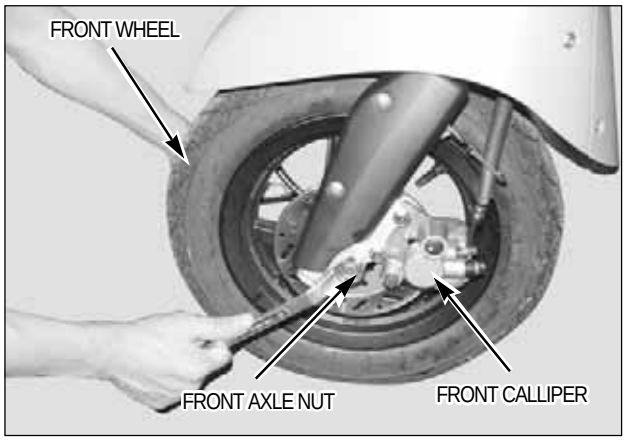
NOTE

· Check the throttle grip for smooth operation and adjust the free play to 2~6mm.

- Match the master cylinder with the punch mark of the handle, install it with the mark in the master cylinder holder facing upwards or front and tighten the rear or front first.

NOTE

· Check to see if the cylinder is passing each cable and wire harness directly and make sure that there is any interference by rotating the handle to the right and left.



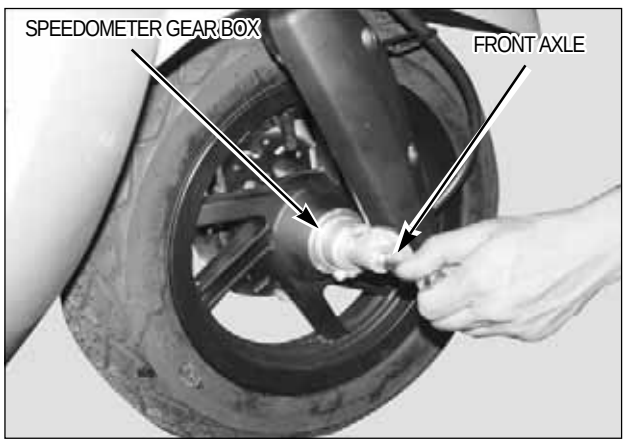
FRONT WHEEL

REMOVAL

- Remove screws from the speedometer gear box, and separate the speedometer cable.

NOTE

· Loosen axle nuts. Support bottom of engine with a jack until the front wheel is lifted.

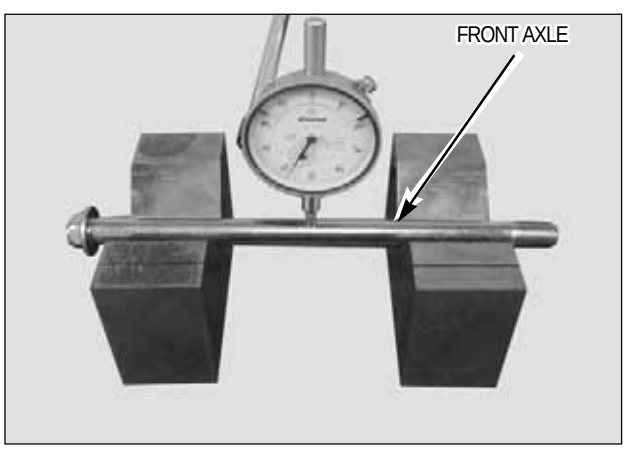


- Loosen the axle nut.
- Remove the front axle.
- Remove the front wheel.

NOTE

· Do not operate brake lever after the front wheel is removed.

- Remove the speedometer gear box.



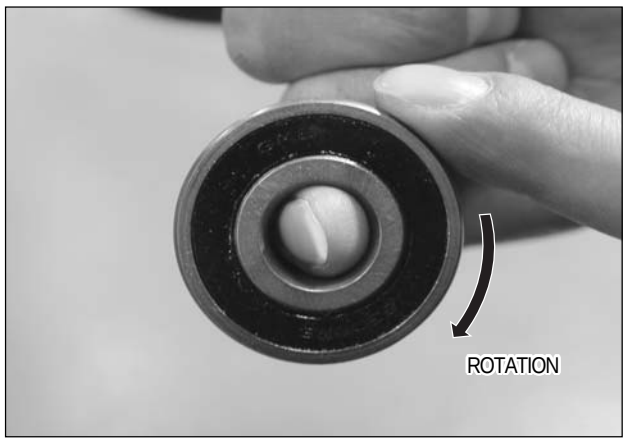
INSPECTION

- Check the front axle for deflection.
- Place the front axle on a V-block, and measure deflection with a dial gauge.

SERVICE LIMIT : 0.2mm

- Place the front wheel on an inspection stand.
- Slowly turn the wheel, and check the rim runout with a dial gauge.

SERVICE LIMIT : Radial 2.0mm
Axial 2.0mm



BEARING INSPECTION

- Manually turn the bearing inner race, and replace if it makes noise or is worn. Check if the bearing outer race is accurately fitted into the wheel hub, and replace worn ones.

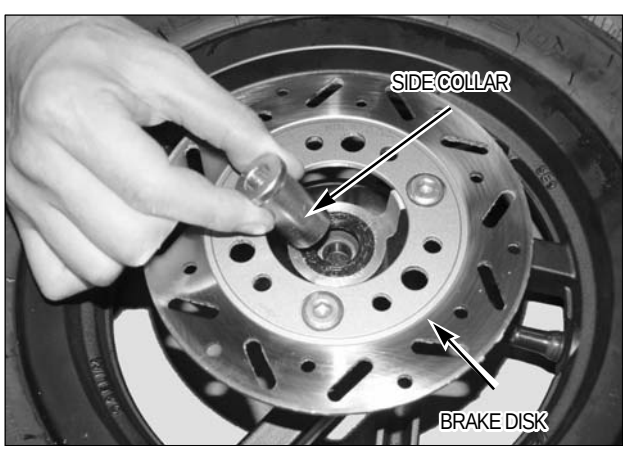
NOTE

- Replace bearings in pairs (left and right set).

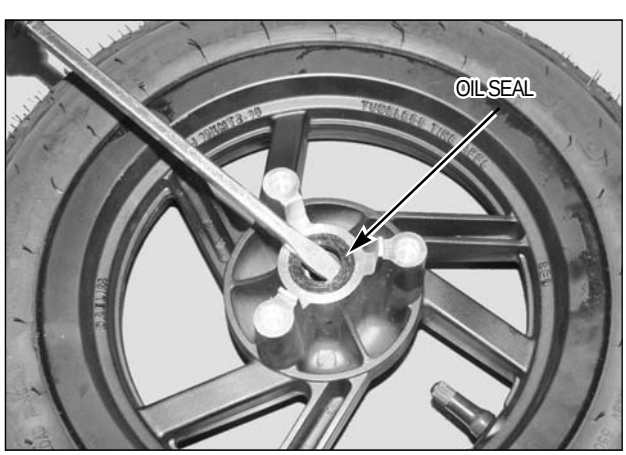
FRONT WHEEL DISASSEMBLY

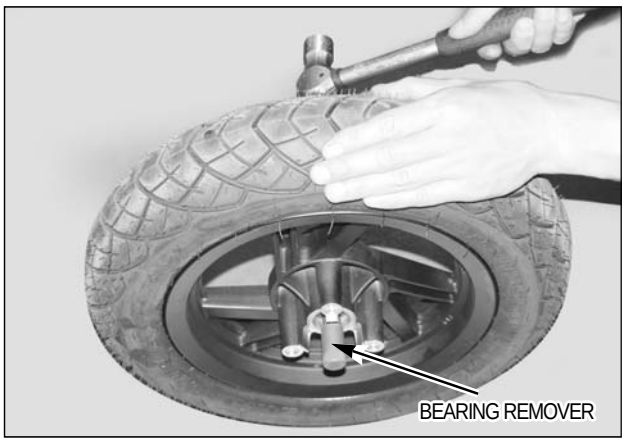
- Remove the speedometer gear box, dust seal, and speedometer gear retainer.

- Remove the front wheel collar A.



- Remove te oil seal and brake disc.
- Check the disc for defects.





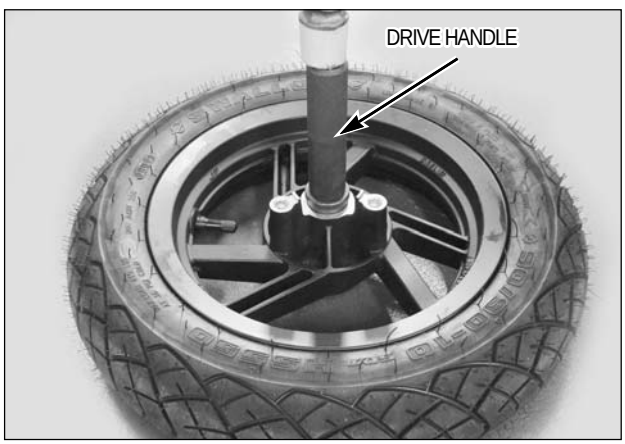
WHEEL BEARING REPLACEMENT

- Install the bearing remover head and the remover shaft on the wheel, and remove the bearing and distance collar.

NOTE

- Always replace bearings in pairs, and never use old bearings.

TOOLS : BEARING REMOVER HEAD
BEARING REMOVER

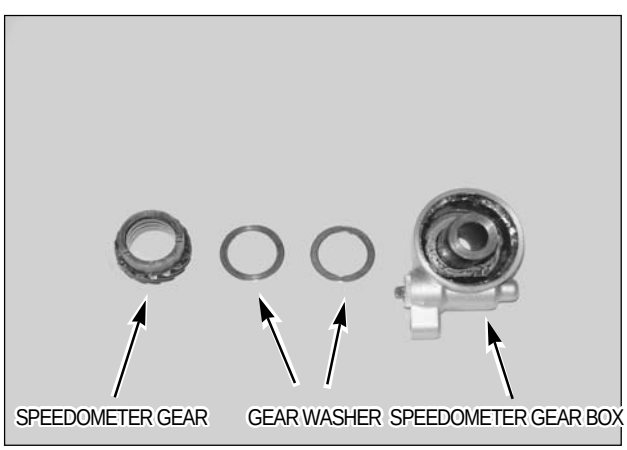


- Apply sufficient amount of grease to the bearing.
- Insert the right bearing with its seal surface facing outside.
- Do not tilt the bearing. Insert accurately.
- Upon assembling the distance collar, insert the left bearing with its seal surface facing outside.

TOOLS : DRIVER
ATTACHMENT, 32 × 35mm
PILOT, 15mm

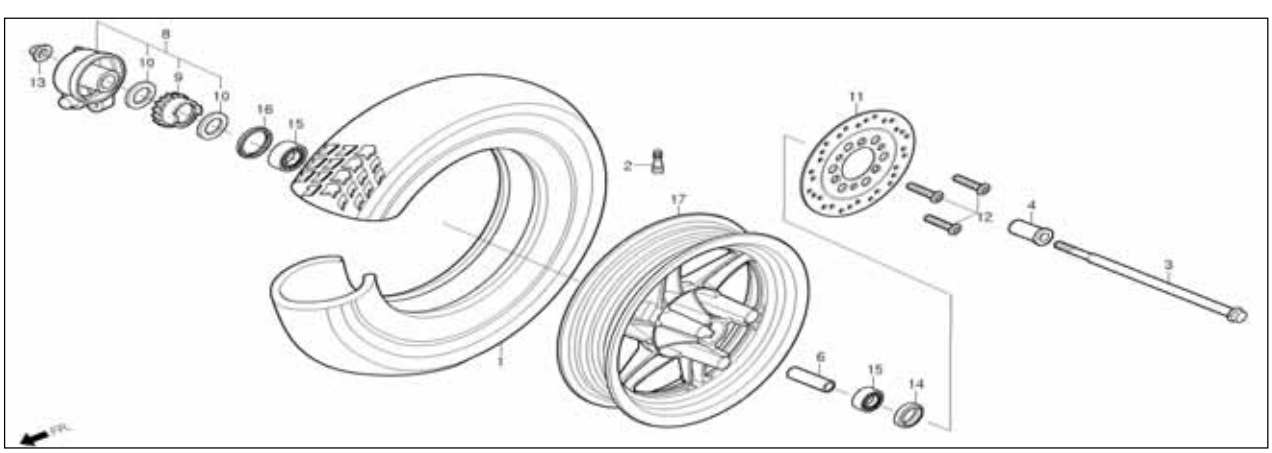
CAUTION

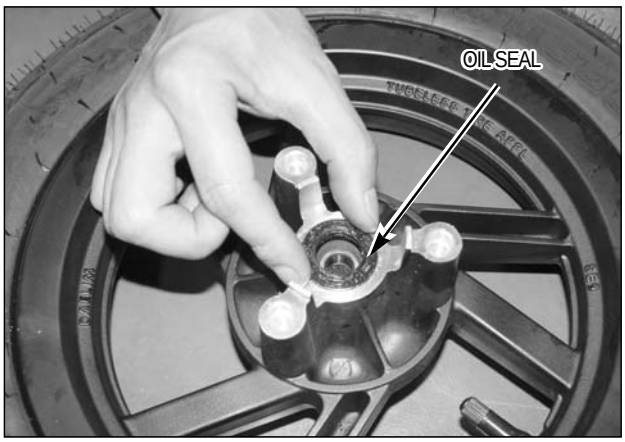
- The bearing inserted in the last must be inserted until it contacts with the distance collar.
- Excessively inserted bearing can cause damage the opposite side bearing.



SPEEDOMETER GEAR REPLACEMENT

- Remove the speedometer gear and washer from the speedometer gear box.
- Check the gear for wear or damage.
- Install the washer.
- Apply grease to the speedometer gear prior to assembling.

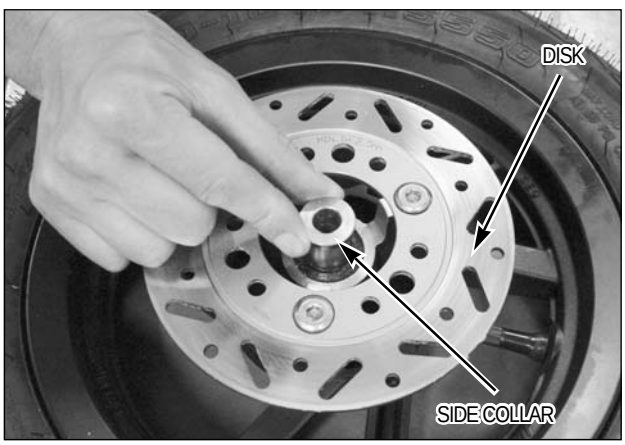




FRONT WHEEL ASSEMBLY

- Apply grease to the right side dust seal rim.
- Install the right side oil seal.
- Install the brake disk.
- Install disk bolts.

TORQUE VALUE : 3.9kgf · m



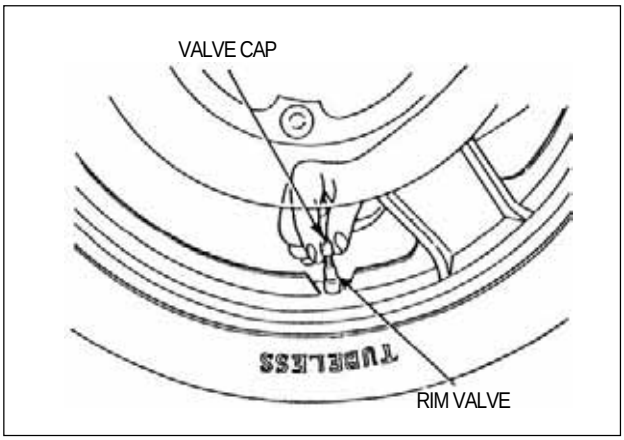
- Install the front wheel collar A.

- Install the meter gear box into speedometer gear box.

- Install the speedometer gear box seal into the wheel hub.
- Install the speedometer gear box into the wheel.

TUBELESS TIRE

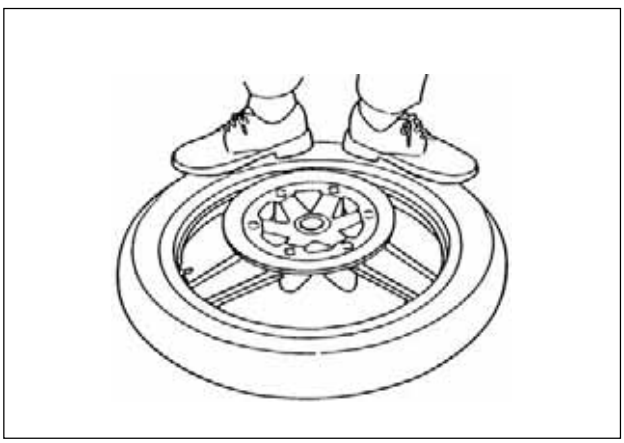
REMOVAL



● Remove the wheel.

NOTE

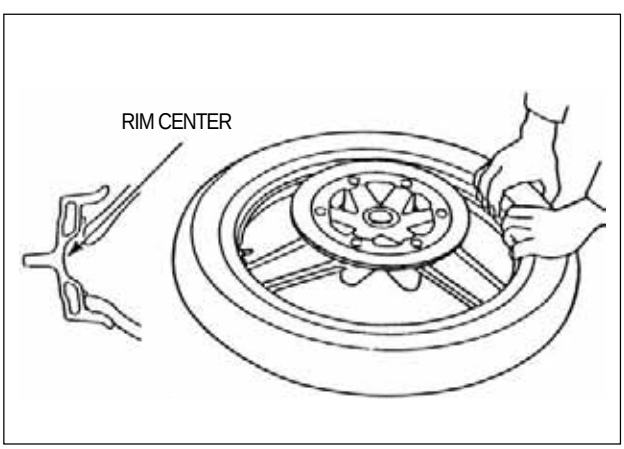
· Single brake disk type : To prevent damage to the disk, place the wheel on the level surface with the disk facing up.



● Remove the valve cap and bleed air by pressing the valve core.
● Remove the valve core after bleeding air completely.
● Remove the valve stem nut and push the valve stem lightly.
● If a bead stopper is installed, loosen the lock nut and push the bead stopper down.
● Collapse in the bead with a tire bead breaker.
● If no tire bead breaker is available, step on the side wall to collapse the bead.

NOTE

· Do not step on the rim.

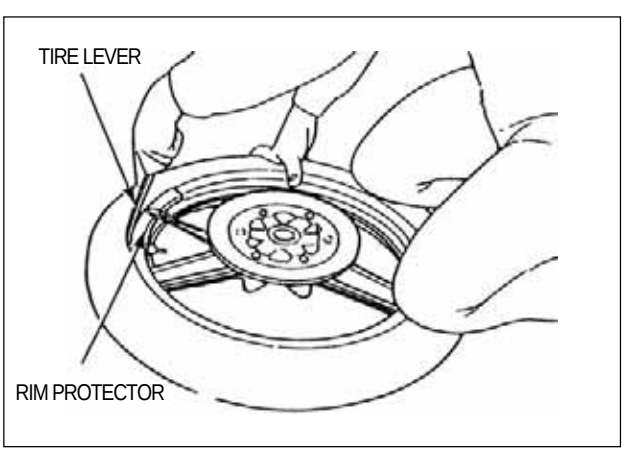


● Collapse the bead into the rim center and slide the tire out of position.

NOTE

· Tire can be easily removed once the beads are collapsed completely.

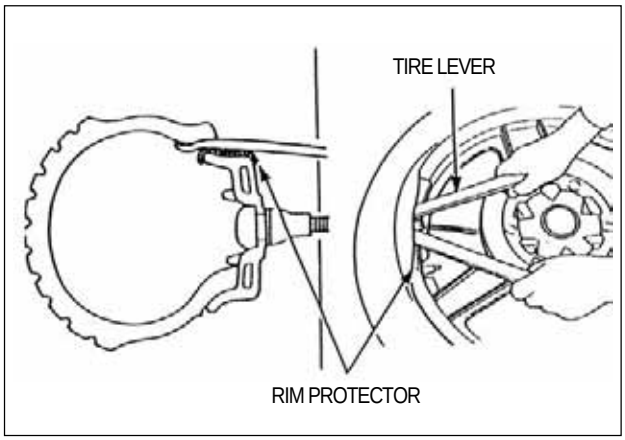
● Apply a mild detergent solution to the rim and tire mating surfaces.
● Be sure that the bead is completely collapsed.
● Insert the tire lever from the opposite side of the valve and raise the bead over the rim.



NOTE

· Be sure to use motorcycle tire levers.

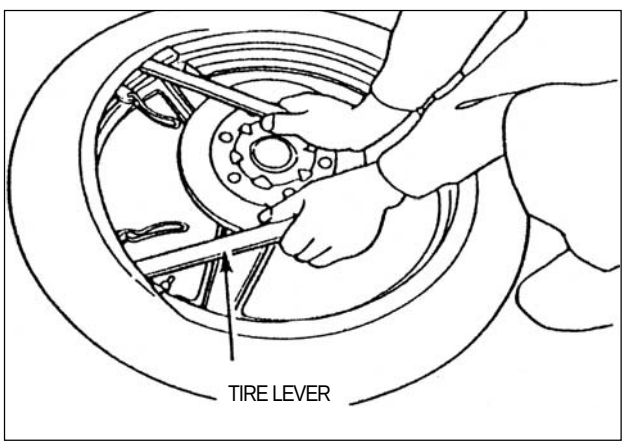
· Do not apply the mild detergent solution to the rim and tire mating surfaces of low pressure tire. Apply water only.



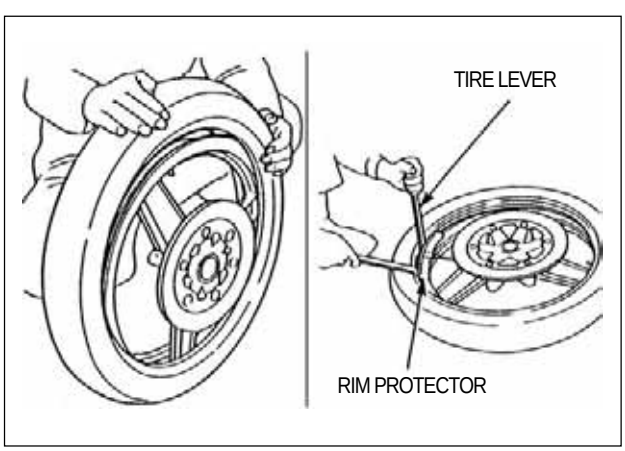
● Insert another tire lever at 30~50mm from the first tire lever and remove the tire from the rim, little by little.

NOTE

· Do not try to remove the bead too much at one time.

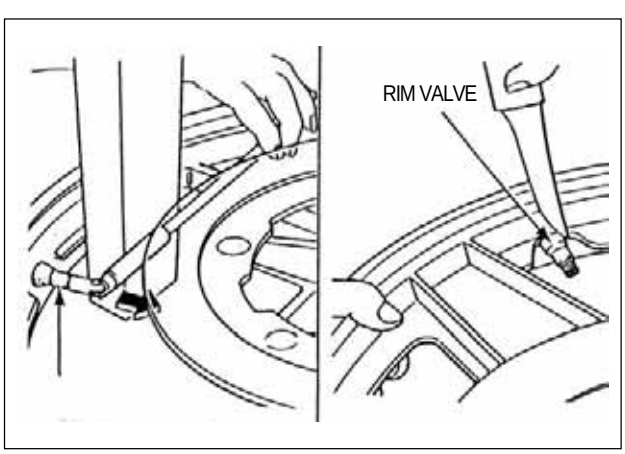


● Repeat the above procedures until half of bead is removed. Then remove the remaining bead by hand.



● Remove the another tire from the rim according to the same procedures.

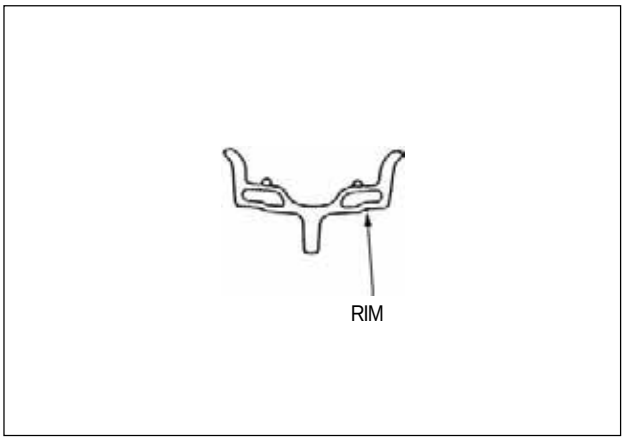
RIM VALVE REPLACEMENT



● Cut off the rim valve at its base.
● Apply mild detergent solution to a replacement rim valve and insert it from inside of the rim.

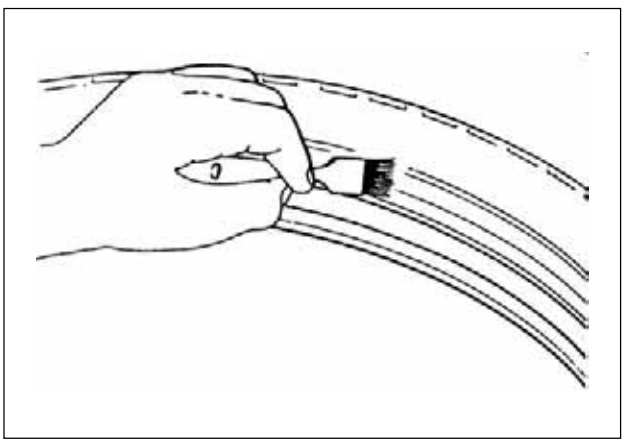
NOTE

· Be sure to use the recommended rim valve.
· Do not damage the valve hole.
· Replace the rim valve whenever installing a tubeless tire.



RIM INSPECTION

- If using a solution (brake cleaner, gasoline, thinner) when removing the rust and dirt, wipe off the remainder when reassembling. It may damage the rubber parts.
- If there is serious deformation, twist or crack, the air may be leaked. Replace the damaged parts immediately.
- If there is scratch on bead contacting face more than 0.5mm in depth or 1.0mm in width, replace the damaged parts immediately.



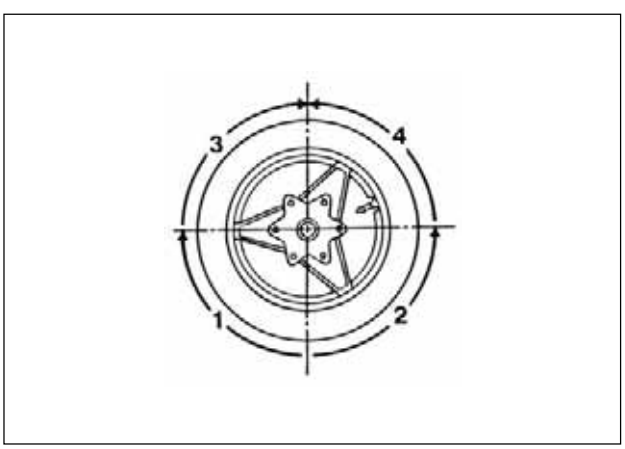
WARNING

· If the combination of tubeless tire and rim isn't proper, the tire may come off. It will cause a serious accident. Pay attention to deal it.

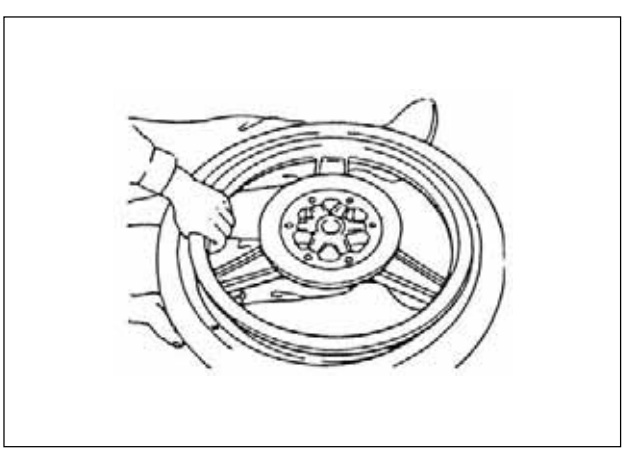
TUBELESS TIRE INSTALLATION

CAUTION

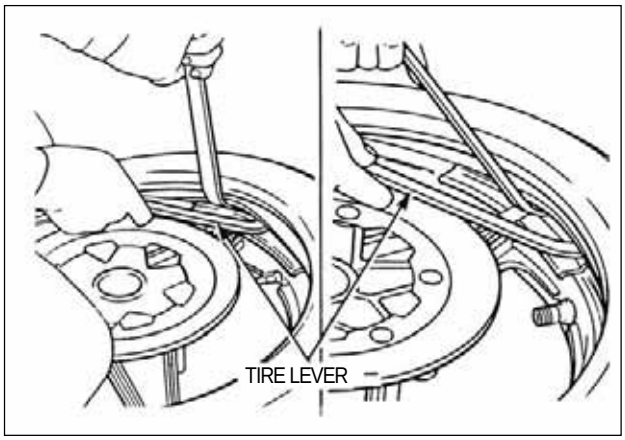
· Always use the exclusive tire lever for two-wheeled vehicles.
· Use the rim protector to prevent the scratch of rim.
· In case of low pressure tire, if vegetable soapy water is used, it may slip even after the rim and tire are installed. Only use the water.



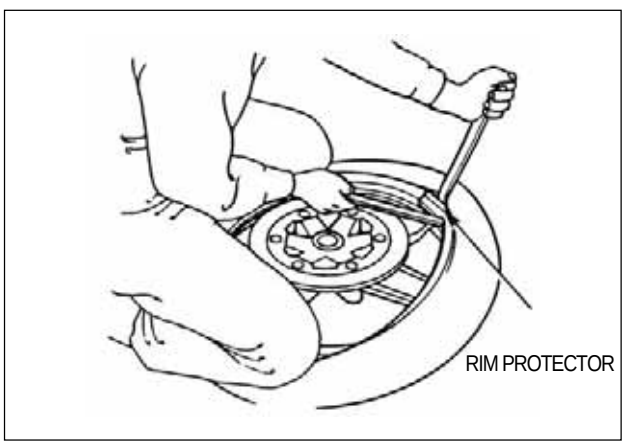
- If the tire has an light mark (yellow paint mark), install the tire with this mark aligned with the valve.
- If the tire has an arrow mark, install the tire with the mark pointing in the direction of rotation.
- Stand the tire upright, hold it with one hand and, starting from the opposite side to the valve, install one side of the tire on the rim as much as you can by hand.



- Be sure to assemble in the sequence shown.
- Place the wheel on the level surface and install the remaining portion of the tire using two tire levers.

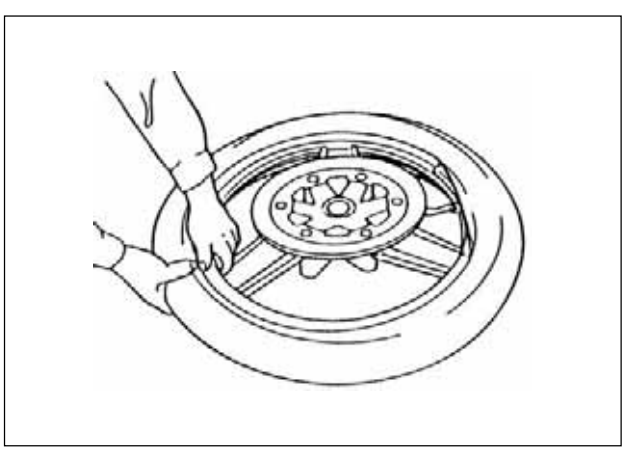


- Install the other side of the bead while holding the assembled portion of the bead with your knee to prevent it from coming off.
- After 1/2 of the bead has been installed, insert the two tire levers at a distance of 30~40mm to install it. Repeat this procedure until 3/4 of the bead has been installed.



NOTE

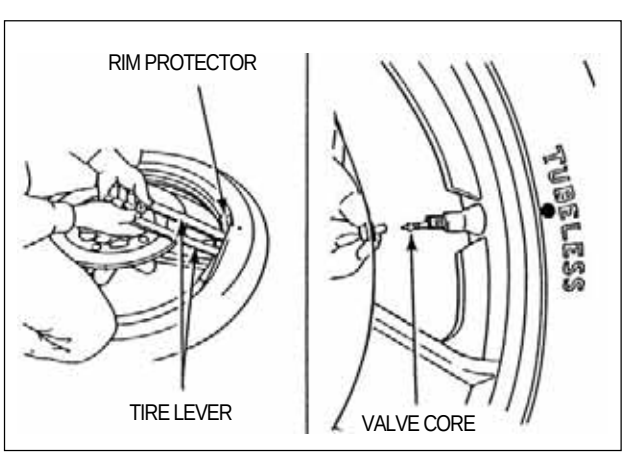
· Hold one tire lever upright to remove the other lever.



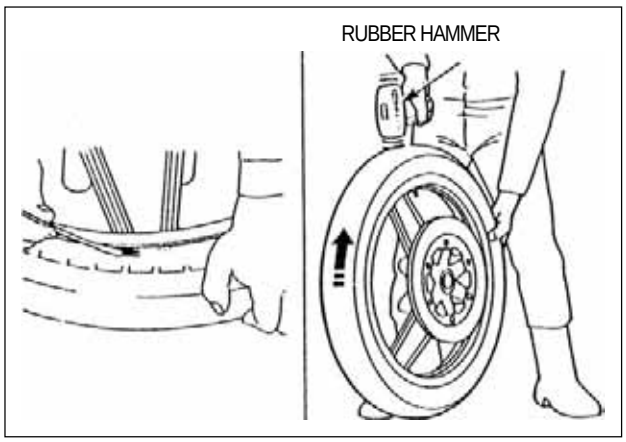
- Check out whether the bead is in the center of the rim when 3/4 of the bead has been installed.

NOTE

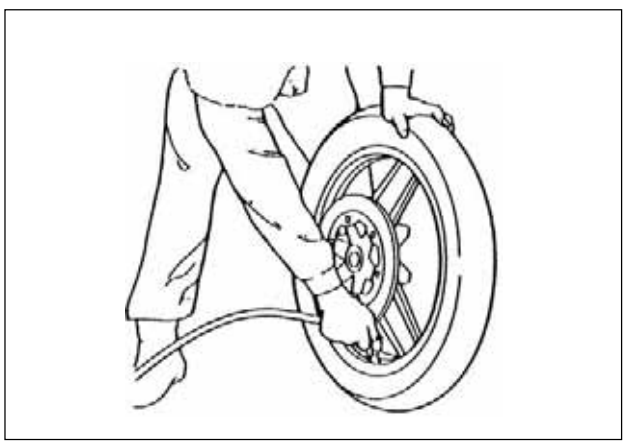
· The last portion of the bead is more difficult to install. The rim and bead may be damaged if the bead on the opposite side of the point where you are working is not in the rim center.



- When the remaining bead is only 50~60mm, pull the two levers up and over and completely install the bead.
- Install the valve core.



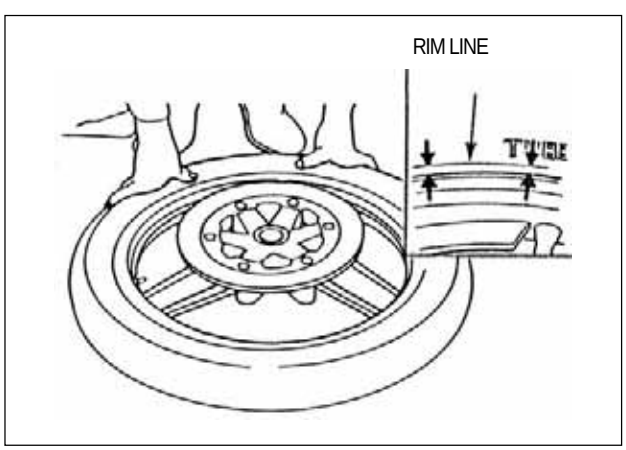
- Apply a mild detergent solution to the bead again.
- Tap on the tire tread surface with a rubber hammer so that the tire and rim fit evenly around the circumference.
- Be sure that the tire center and rim center are aligned.



- Inflate the tire to 1.5 times the standard recommended pressure to seat the bead on the rim.

NOTE

- When air charging, you may hear a loud sound as the bead seats onto the rim. This is normal.
- When air charging, if air leaks out from between the rim and bead, let the wheel stand with the valve at the bottom and put air in while pushing down on the tire.



- Check that the tire bead seats on the tire rim securely and the rim line of the tire is consentric when the rim.

FRONT WHEEL INSTALLATION

- Insert the front wheel between the front forks.
- Insert the disk, taking precautions not to damage the pad, and assemble the wheel.
- Align the slots of the speedometer gear with the tangs of the left fork slider.
- Insert the front axle into the speedometer gear box and the wheel hub.

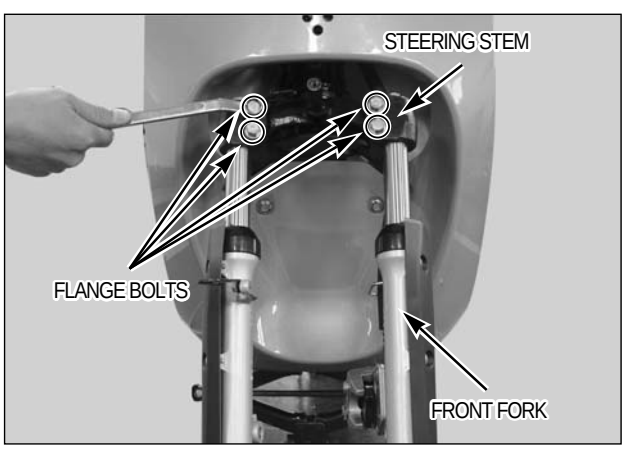
- Install the axle nut.
- Assemble the speedometer cable, and tighten with screws.
- Place the front wheel on the ground, and tighten the axle nut to the prescribed torque.

TORQUE VALUE : 6.0kgf · m

FRONT FORK

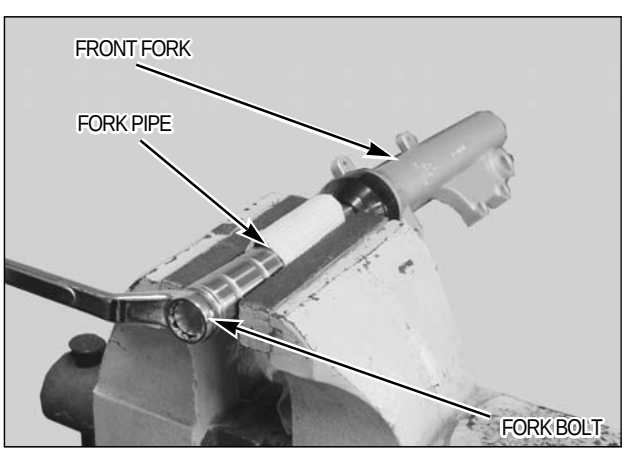
REMOVAL

- Remove the front cover. (⇨3-5)
- Remove the front fender. (⇨3-6)
- Remove the front brake caliper. (⇨12-6)
- Remove the front wheel. (⇨10-5)
- Remove the front fork cover.



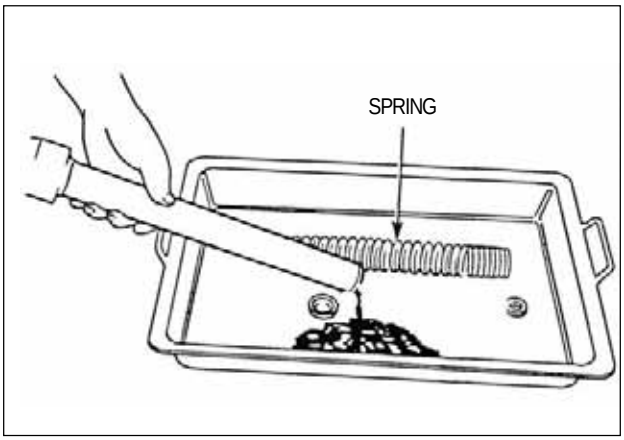
- Loosen the front brake hose stay bolt, remove the L. fork.
- Remove the speedometer cable from R. fork speedometer cable guide.
- Loosen the R. fork securing bolt, remove the speedometer cable and guide.

- Loosen the 2 steering stem front fork R., L. stay bolts.
- Remove the front fork.



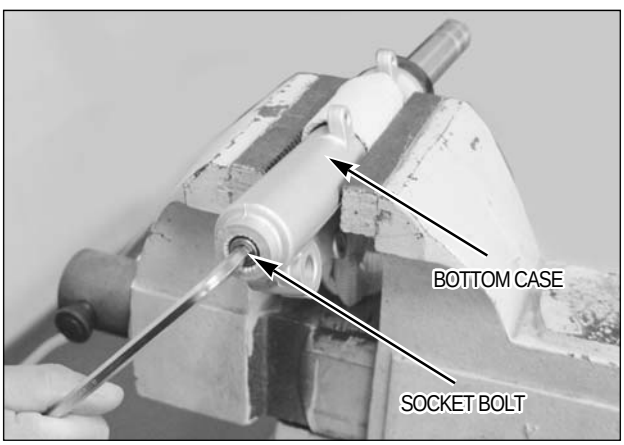
FRONT FORK DISASSEMBLY

- Wrap the fork pipe with a piece of cloth, and fix it to the vise.
- Remove the fork pipe cap bolt.



NOTE

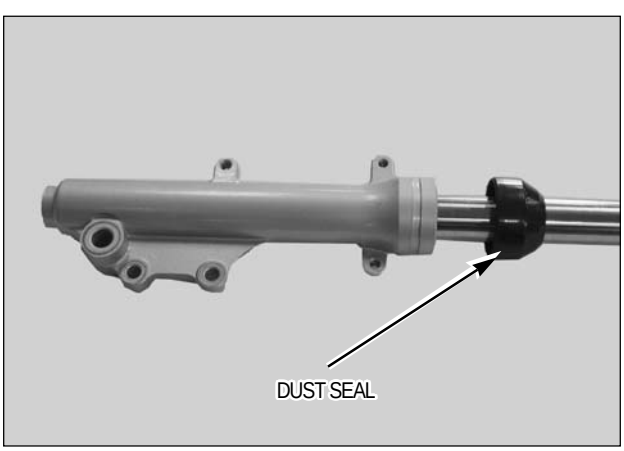
- If the screw is completely loosened, the fork tube cap bolt may spring out by the force of the spring. Take due precautions.
- Remove the fork spring, and expand and release the fork pipe several times to drain fork oil.



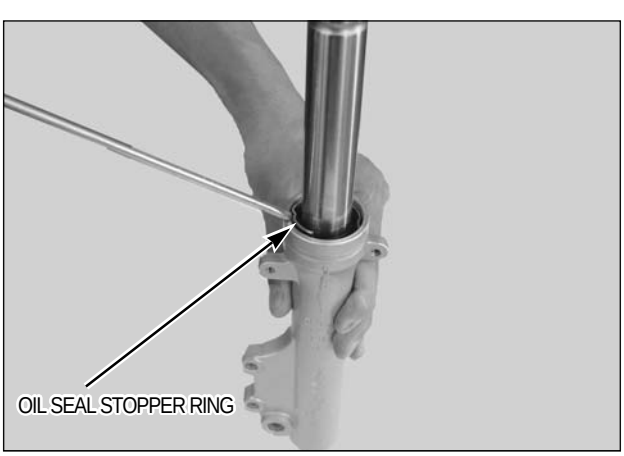
● Wrap the bottom case with a piece of cloth, and remove the socket bolt.

NOTE

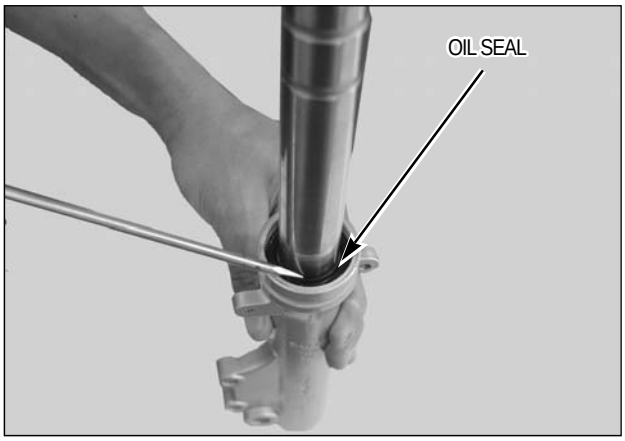
- If the socket bolt turns idle but cannot be removed, temporarily assemble the spring and the fork tube cap bolt first.
- Hold the bottom case firmly with a vise, taking precautions not to distort or damage it.



● Remove the dust seal.



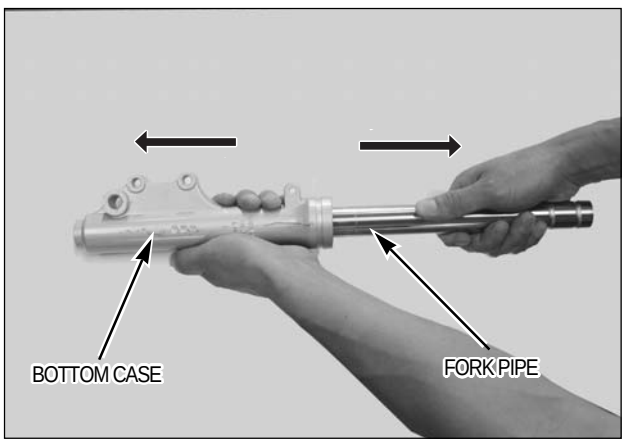
● Remove the oil seal stopper ring.



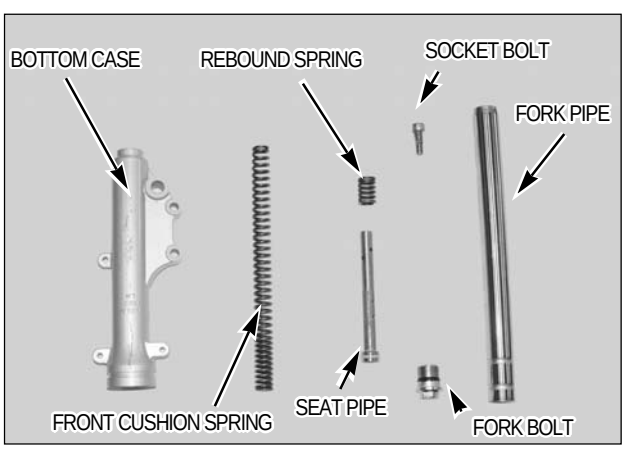
● Remove the oil seal.

NOTE

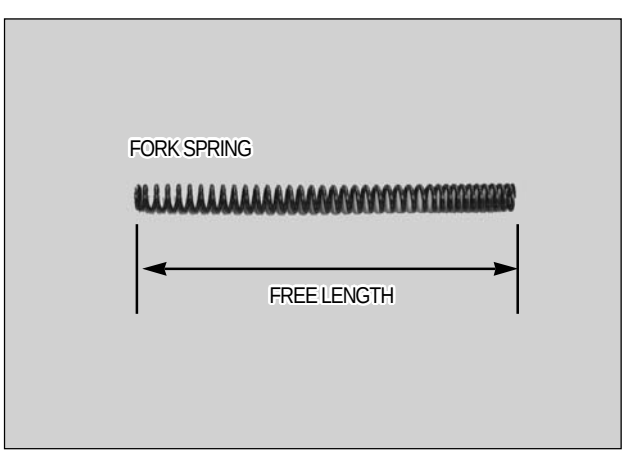
· Take precautions not to damage the interior and exterior rim of the bottom case.



● Remove the fork pipe from the bottom case.



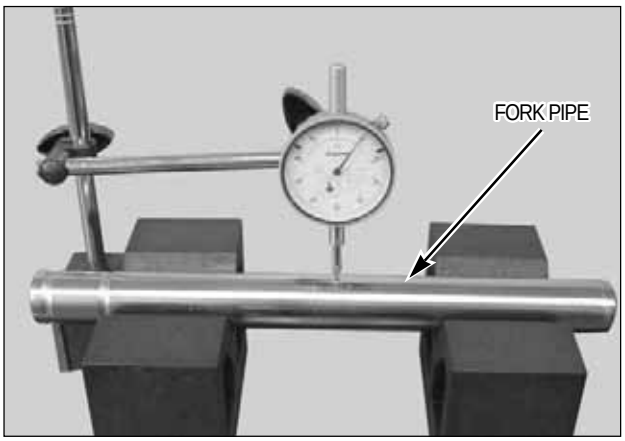
● Remove the seat pipe, the piston and rebound spring from the fork pipe.



FRONT FORK INSPECTION

● Place the fork spring on a level palce, and measure the free length.
● If the free length deviates from the service limit, replace the spring with a new one.
● Check components for damage or abnormal wear. Replace defective parts with new ones.

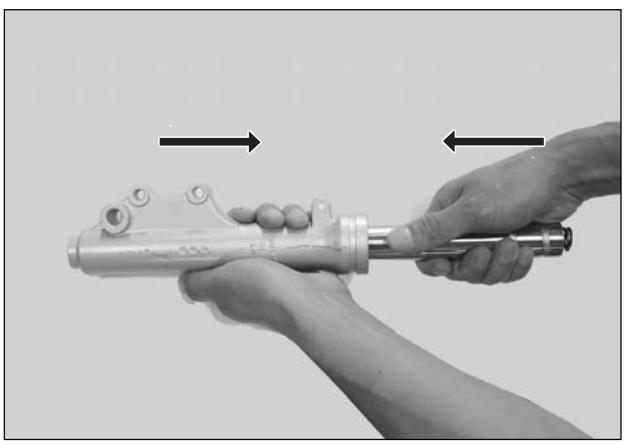
SERVICE LIMIT : 231.9mm



● Place the fork tube on a V-block, and measure deflection with a dial gauge.

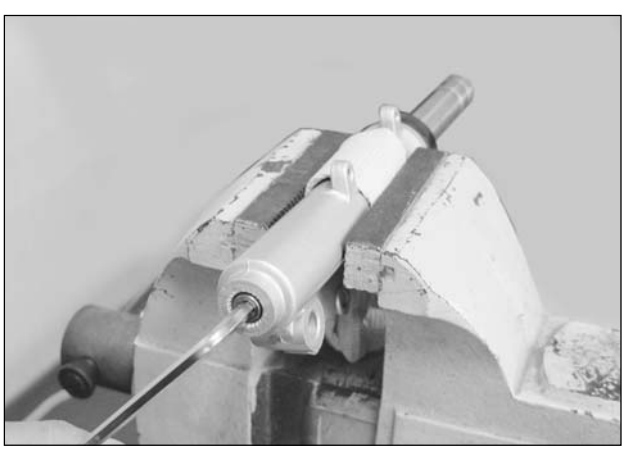
SERVICE LIMIT : Replace if the deflection is greater than 0.2mm

● Check the slider bush contact face.
● If the slider bush is extensively damaged, replace the bottom case.



FRONT FORK ASSEMBLY

● Wash parts with clean oil prior to assembling.
● Assemble the rebound spring and thd fork piston to the fork pipe.
● Assemble the fork pipe to the bottom case.

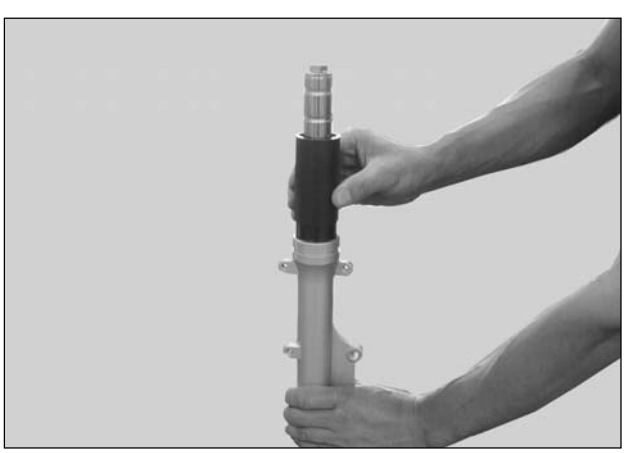


● Wrap the bottom case with a piece of cloth, and fix it to the vise.
● Apply screw locking agent to the socket bolt thread, and assemble the socket bolt to the fork piston.

TORQUE VALUE : 2.0kgf · m

NOTE

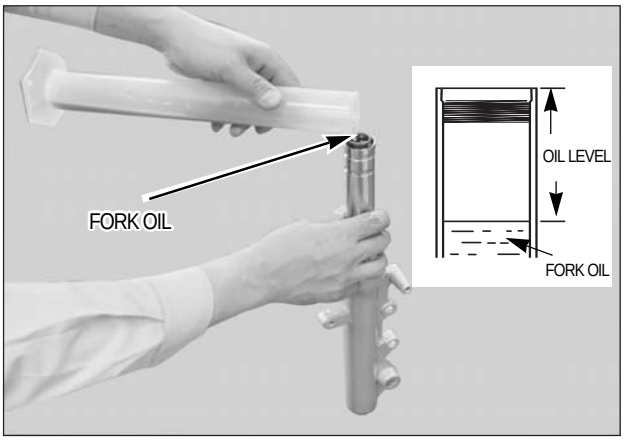
· When a vise is used to hold the bottom case, do not insert the case itself but insert the bracket.



● Apply ATF to a new oil seal.
● Assemble the oil seal to the bottom case.
● Insert the oil seal with special tools until the attachment groove of the bottom case set ring is exposed.

TOOLS : FORK SEAL DRIVER
FORK SEAL DRIVER BODY

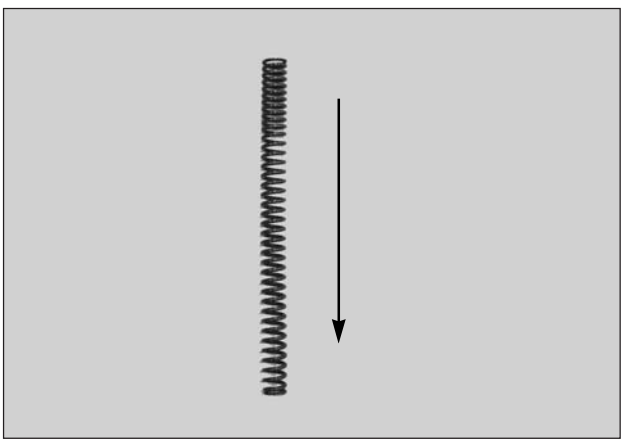
● Install the oil seal stopper ring.
● Accurately assemble the oil seal stopper ring to the bottom case.



- Install the dust seal.
- Fill a prescribed amount of automatic transmission fluid(AFT) into the fork pipe.

CAPACITY : 58㎤

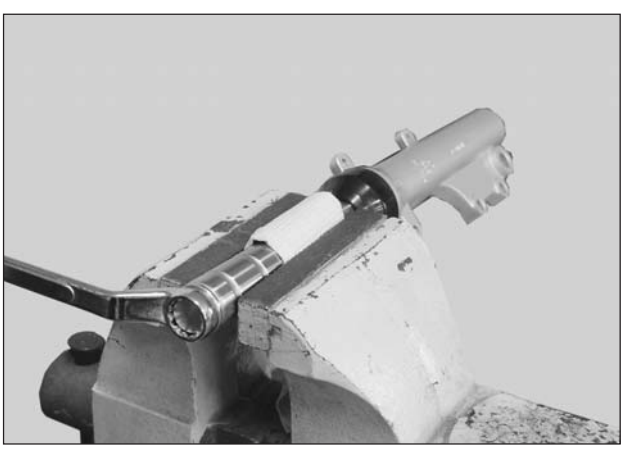
- Slowly press the fork pipe 2-3 times to discharge air.



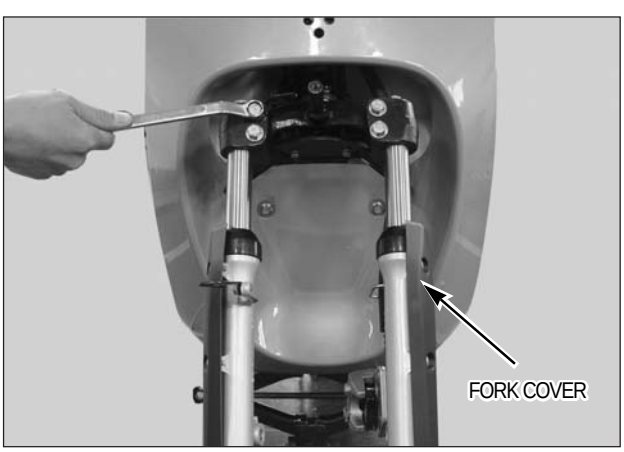
- Assemble the spring to the fork pipe.

NOTE

· Install the spring with the smaller pitch side facing downward.



- Assemble the fork bolt to the fork pipe.



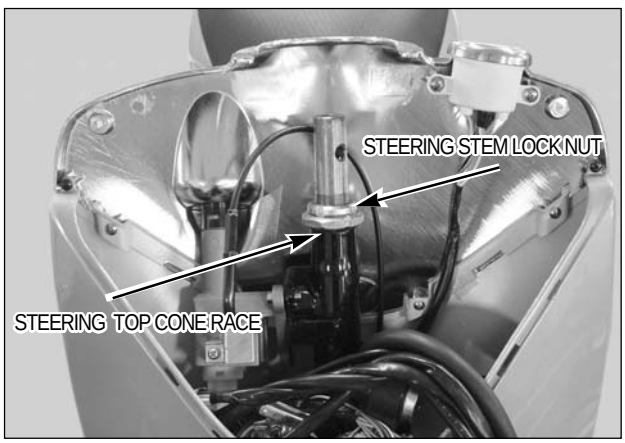
FRONT FORK INSTALLATION

- Install the front fork to the steering stem.
- Install the front fork setting bolt.
- Install the front fork cover.

TORQUE VALUE : 4.0kgf · m

● Install the following parts.

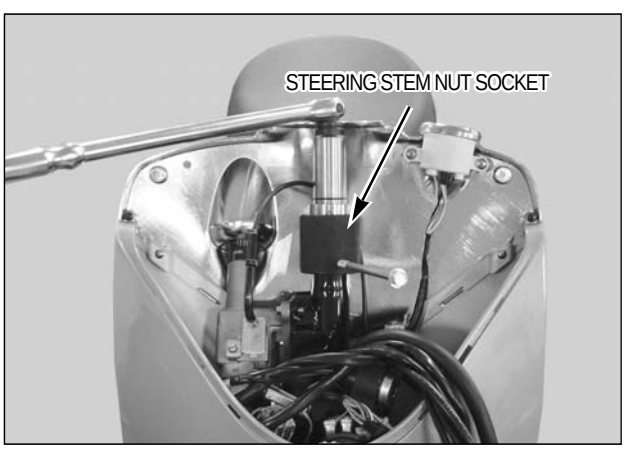
- Front wheel (⇨10-5)
- Brake caliper (⇨12-6)
- Front fender (⇨3-6)
- Front cover (⇨3-5)



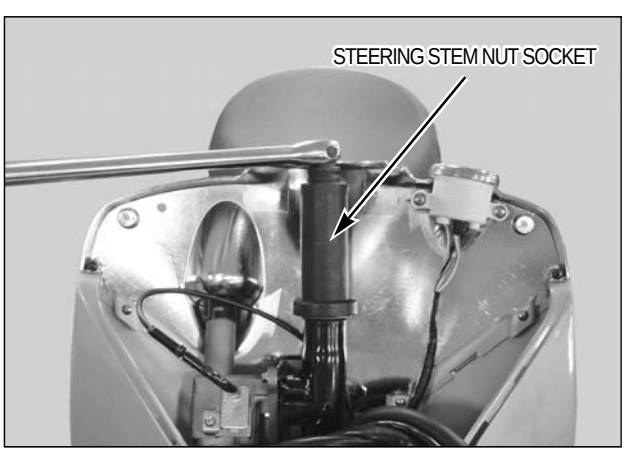
STEERING STEM

REMOVAL

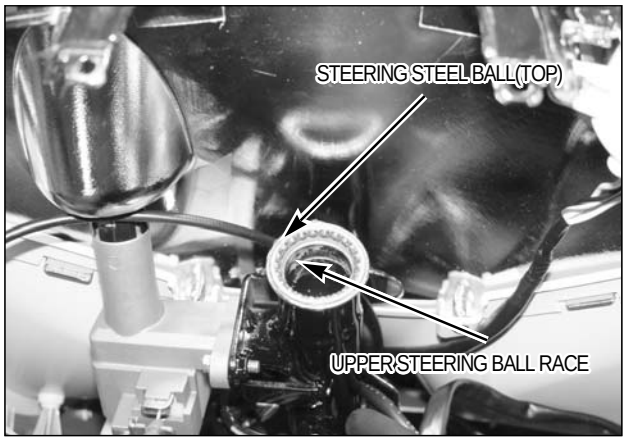
● Front cover (⇨3-5)
● Front fender (⇨3-6)
● Steering handle (⇨10-3)
● Front wheel (⇨10-5)
● Front brake caliper (⇨12-6)
● Front fork (⇨10-14)



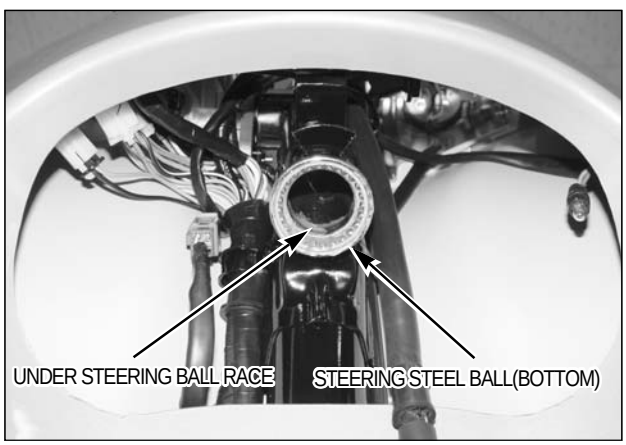
● Loosen the steering stem lock nut.
● Remove the speedometer cable and front brake hose from the steering stem bracket.



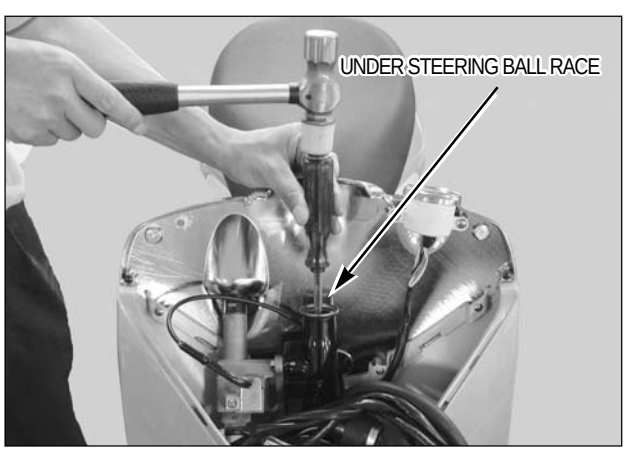
● Loosen the steering top cone race.
● Remove the steering stem.



- Check the steel ball, cone race, and ball race for wear or damage. Replace worn or damaged ones.
- Remove the steering steel ball Ass'y (Top).



- Remove the steering steel ball Ass'y (Bottom).



- Remove the upper / under ball race.

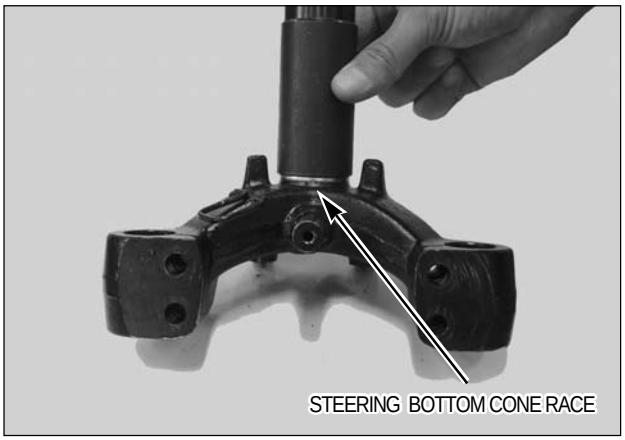
TOOL : BALL RACE DRIVER

NOTE

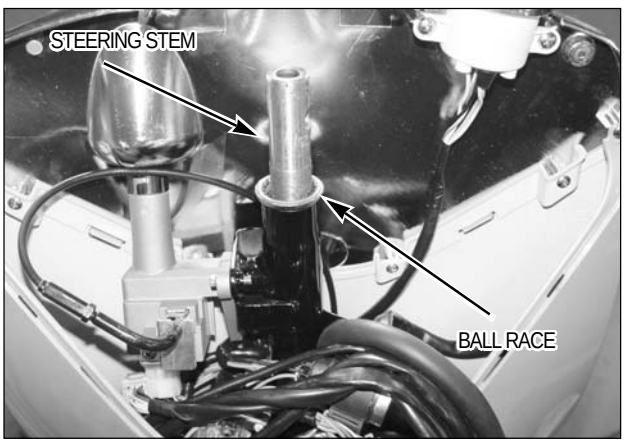
- Check all of the races and balls for damage or abnormal wear and replace as necessary.
- If the vehicle has been involved in a collision, the steering stem may be damaged.

STEERING STEM INSTALLATION

- Insert the upper/under ball race into the steering head pipe.

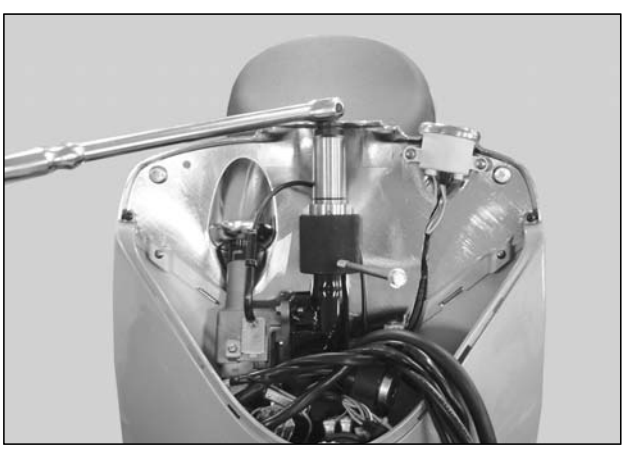


- Using a steering stem driver, drive the steering stem bottom cone race into the steering stem.

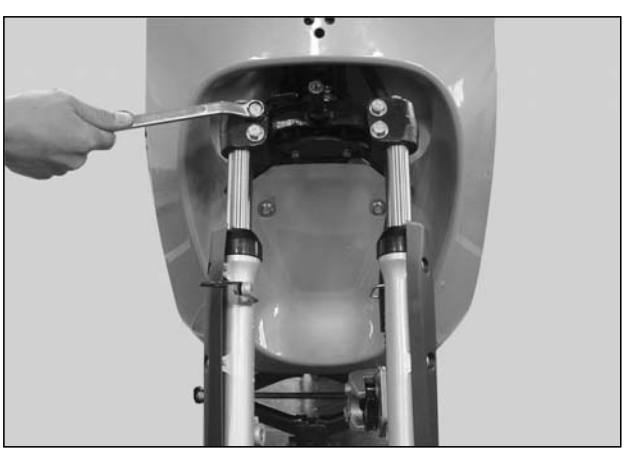


- Insert the ball race after applying grease.
- Temporarily tighten the top cone race on the steering stem.
- Check for smooth left and right movement, and completely tighten the top cone race again.

TORQUE VALUE : 1.5kgf · m



- Loosen by 1/4 turn, and check the top and bottom free play.



- Temporarily install the R/L front forks first, and tighten the steering stem nuts.

TORQUE VALUE : 7.0kgf · m
TOOLS : LOCK NUT WRENCH
EXTENSION BAR

- Install the front fork.

● Install the following parts.

- Steering handle (⇨10-3)
- Front wheel (⇨10-5)
- Front handle cover/ rear handle cover (⇨3-6)
- Front fender (⇨3-5)
- Front brake caliper (⇨12-6)

NOTE

・ Check the cables and wiring for interference.

● Install the front cover.

MEMO

MEMO

11. REAR WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION · · · 11-1
SERVICE STANDARD · · · · 11-1
TROUBLESHOOTING · · · · 11-2
REAR WHEEL · · · · · · · 11-3
REAR BRAKE · · · · · · · 11-4
REAR CUSHION · · · · · · 11-6

SERVICE INFORMATION

GENERAL SAFETY

- If the brake drum or lining is contaminated with oil, braking power will be lost. If contaminated with oil, clean the brake drum, and replace the brake shoe.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use a brake cleaner, designed to mininize the hazard caused by airborne asbestos fibers.

SPECIFICATIONS

ITEM		STANDARD VALUE	SERVICE LIMIT
AXLE SHAFT RUN OUT		-	0.2mm
REAR WHEEL RIM RUNOUT	RADICAL	-	2.0mm
	AXIAL	-	2.0mm
REAR BRAKE DRUM INNER DIAMETER		110.0~110.3mm	111.0mm
REAR BRAKE LINING THICKNESS		4.0mm	2.0mm
REAR CUSHION SPRING FREE LENGTH		234.8mm	229.6mm

TORQUE VALUES

AXLE SHAFT RUN OUT	10.0~12.0kgf · m
REAR CUSHION UPPER BOLT	3.5~4.5kgf · m
REAR CUSHION LOWER BOLT	3.5~4.5kgf · m

TROUBLESHOOTING

Wobble or vibration in motorcyle

- Tire pressure incorrect
- Faulty tire
- Bent rim
- Loose wheel bearing
- Swing arm bushing worn
- Wheel out of balance

Soft suspension

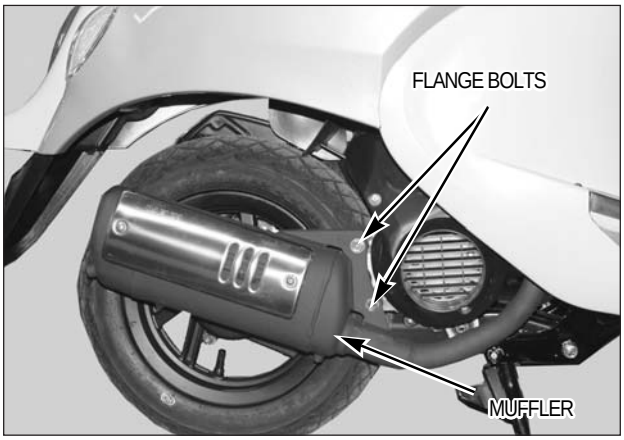
- Weak springs
- Rear damper improperly adjusted, oil leakage

Hard suspension

- Rear damper improperly adjusted
- Bent shock absorber rod

Suspension noise

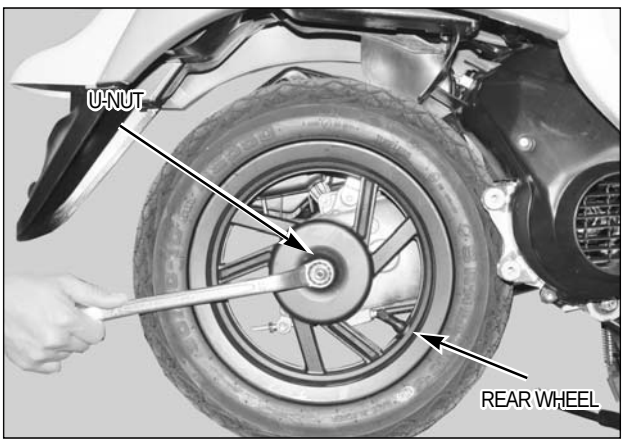
- Loose fasteners
- Worn shock



REAR WHEEL

REMOVAL

- Support the motor cycle on the main stand.
- Remove the muffler. (⇨3-8)



- Loosen the rear wheel U nut.
- Remove the rear wheel.

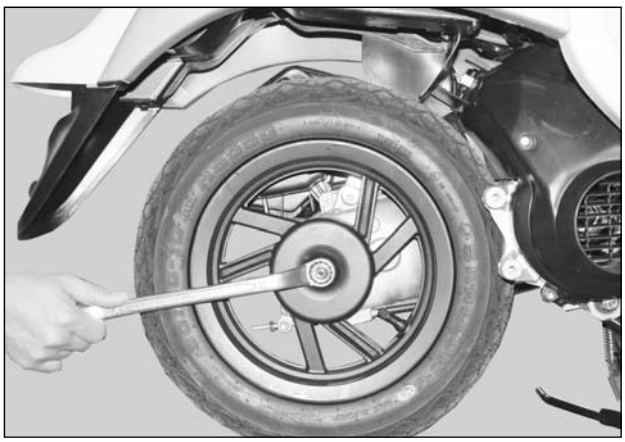
INSPECTION

- Turn the wheel, and check the rim for wobbles.

SERVICE LIMIT : Radical 2.0mm
Axial 2.0mm

INSTALLATION

- Insert the rear wheel over the final shaft.



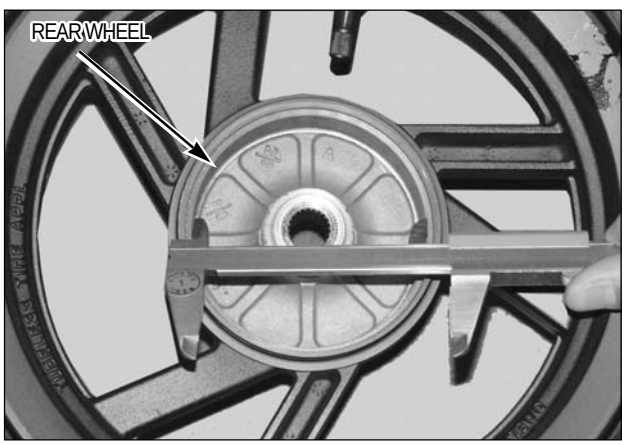
● Tighten the U nut.

TORQUE VALUE : 6.0~8.0 kgf · m

● Install the muffler.

NOTE

· Check the free play of the brake after the rear wheel assembling



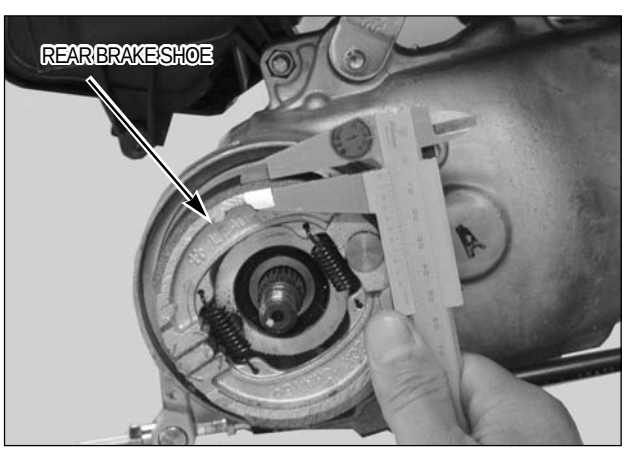
REAR BRAKE

● Remove the rear wheel. (⇨11-3)

INSPECTION

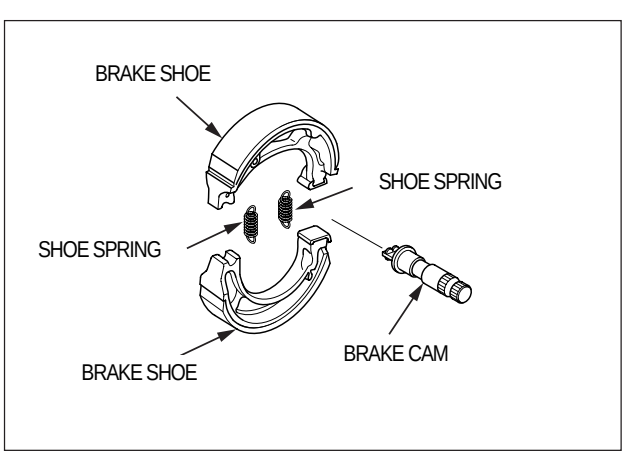
● Measure the brake drum of inner diameter

SERVICE LIMIT : 111mm



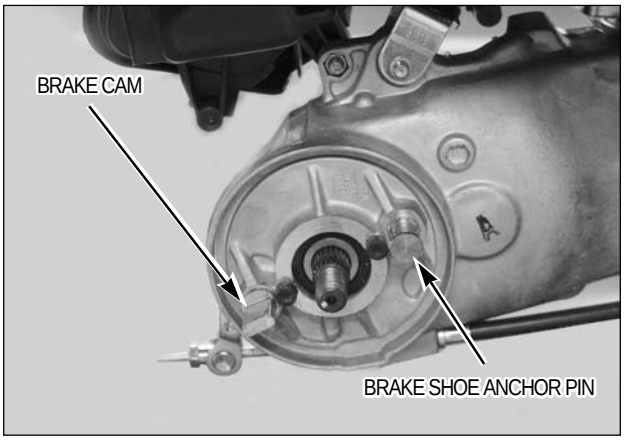
● Measure the thickness of the brake lining.

SERVICE LIMIT : 2.0mm

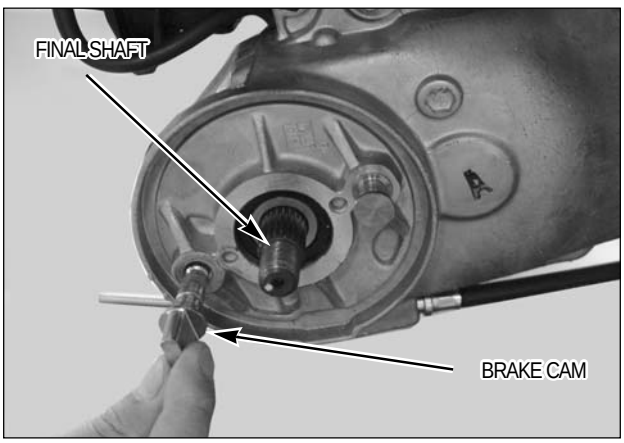


REAR BRAKE DISASSEMBLY

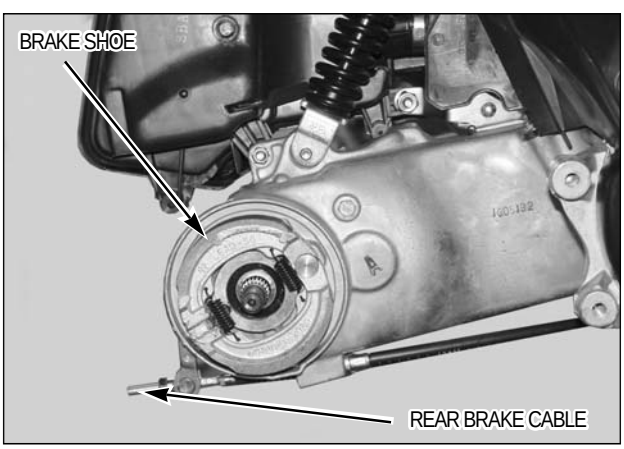
● Manually open the brake shoe and remove it.
● Remove the shoe spring from the brake shoe.



- Loosen the rear brake arm fixing bolt.
- Remove the rear brake arm, rear brake indicator, brake cam, dust seal.



- Remove the rear brake cam.

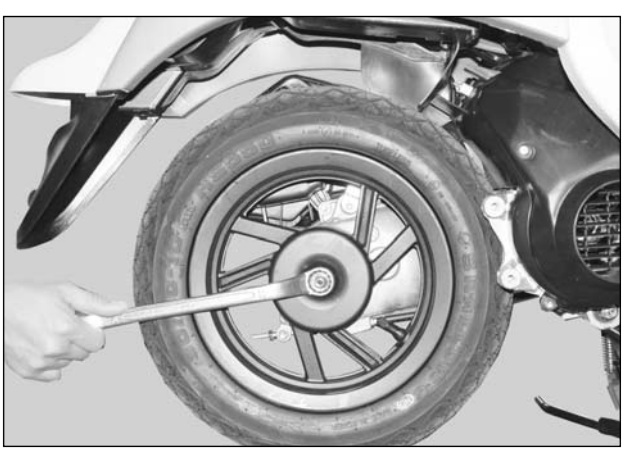


REAR BRAKE ASSEMBLY / INSTALLATION

- Apply small amount of grease to the brake cam.
- Install the brake cam.
- Install the rear brake dust seal, indicator, rear brake arm.

NOTE

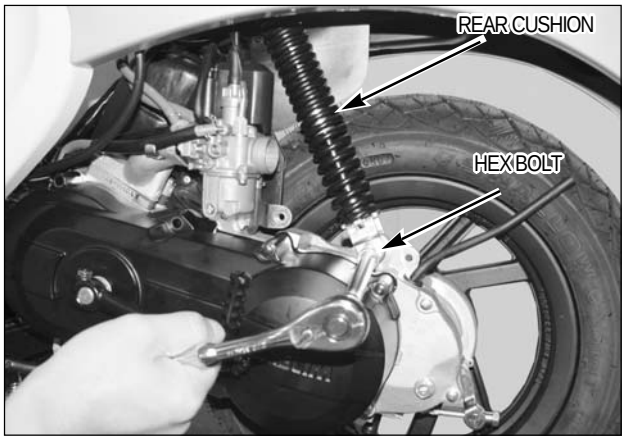
- Align the punch marks of the brake arm and the brake cam before assembly.
- Remove the excessive grease after assembling the shoe.



- Install the brake shoe and spring.
- Install the rear brake shoe to the rear brake cam.
- Install the rear wheel.
- Install the washer and U nut.
- Install the muffler.

NOTE

- Check the brake for smooth operation.



REAR CUSHION

REMOVAL

- Remove the luggage box. (⇨3-3)
- Remove the air cleaner.
- Loosen the top and bottom rear cushion setting bolts.

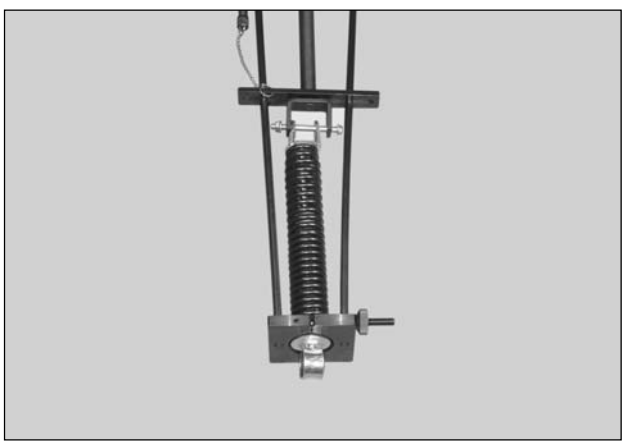
NOTE

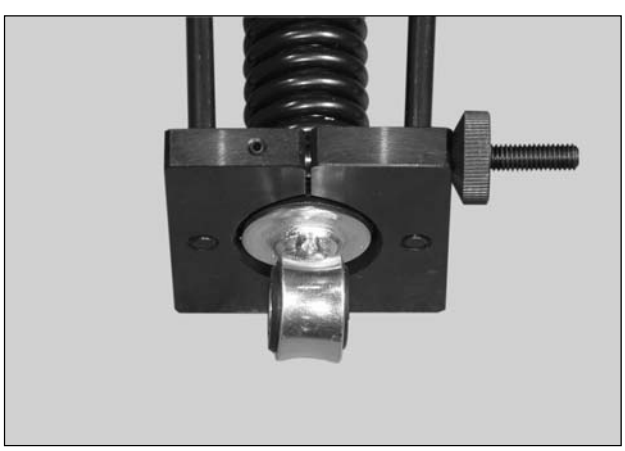
・ Support the frame firmly prior to working.

DISASSEMBLY

- Install the compressor attachment as shown in the figure.
- Install the cushion on the cushion compressor, and compress the spring.

TOOLS : COMPRESSOR ATTACHMENT
REAR COMPRESSOR



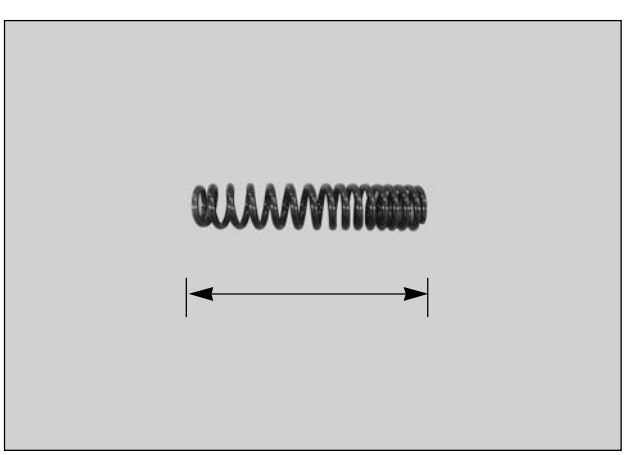


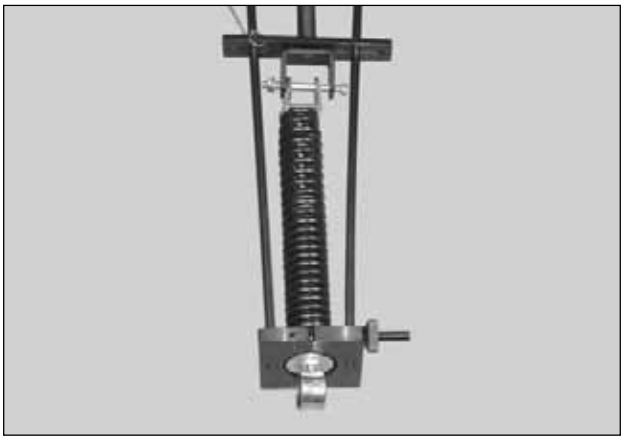
- Fix the bottom metal, and loosen the lock nut.
- Remove the bottom metal.
- Remove the stopper rubber, spring from the damper component.

INSPECTION

- Measure the rear cushion spring free length.
- Check the damper rod for deflection or damage.

SERVICE LIMIT : 229.6mm





REAR CUSHION ASSEMBLY / INSTALLATION

- Assemble the spring, spring guide, and stopper rubber.

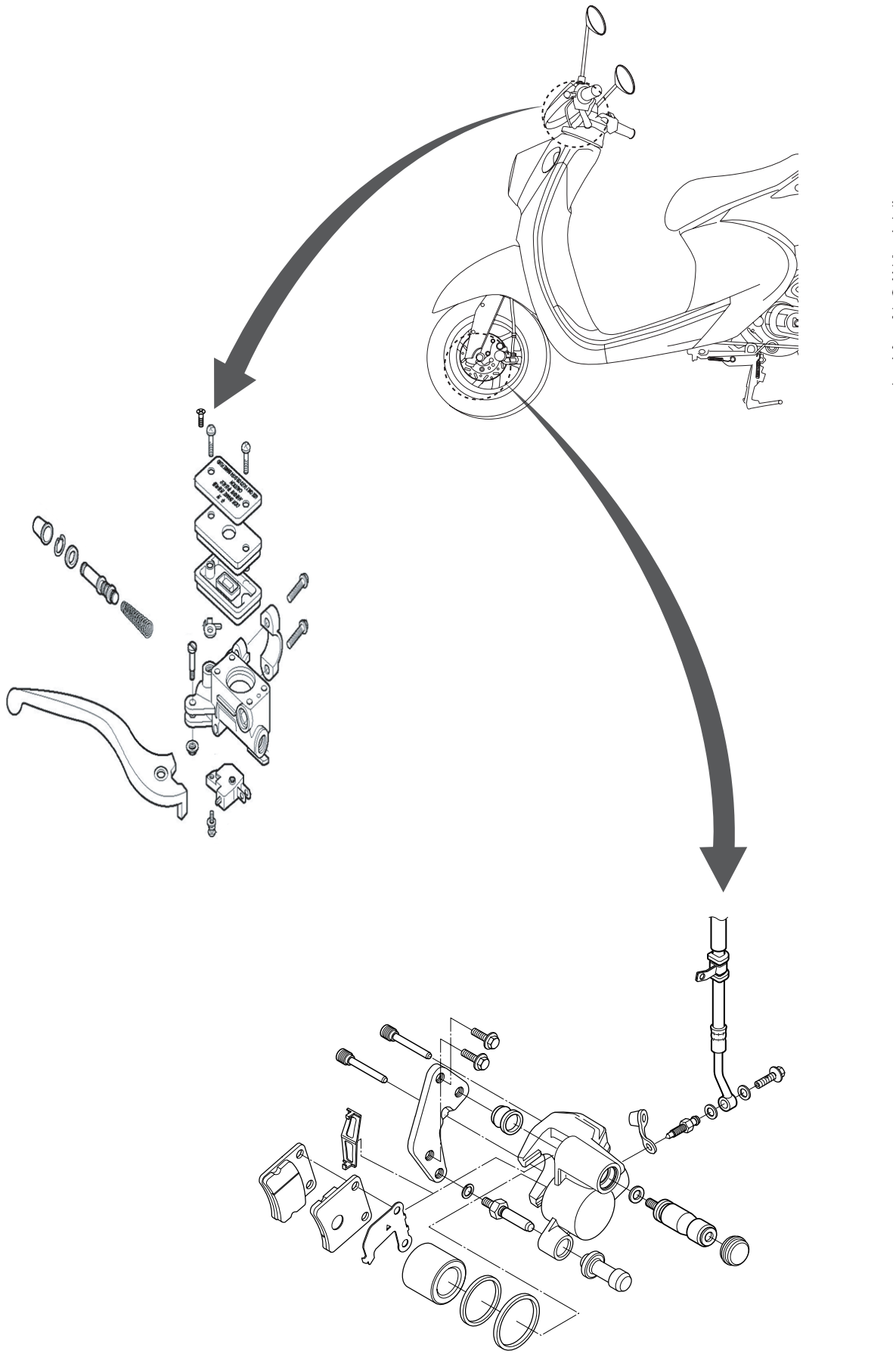
- Apply thread locking agent to the lock nut, and install the rear cushion compressor attachment on the damper rod.
- Fix the upper joint, and tighten the lock nut.

TORQUE VALUE : 4.0 kgf · m
TOOLS : REAR CUSHION COMPRESSOR
REAR CUSHION COMPRESSOR ATTACHMENT

INSTALLATION

- Install the rear cushion.
- Install the luggage box.
- Tighten the top and bottom of the cushion with bolt.
- Install the air cleaner.

TORQUE VALUE : UPPER SIDE 3.5kgf · m
LOWER SIDE 3.5kgf · m



12. BRAKE SYSTEM

SERVICE INFORMATION · · · 12-1
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BRAKE FLUID/BLEEDING · · 12-3
BRAKE PAD REPLACEMENT · 12-4
BRAKE DISK INSPECTION · · 12-6
BRAKE CALIPER · · · · · · 12-6
MASTER CYLINDER · · · · · 12-9

SERVICE INFORMATION

GENERAL SAFETY

- Do not allow foreign material to enter the system when replenishing brake fluid.
- To prevent chemical changes, do not mix different types of brake fluid.
- Do not use the old brake fluid again.
- Brake fluid can cause damage to painted, plastic, and rubber surfaces. Take precaution not to allow parts to be contaminated by the brake fluid.
- Do not reuse sealing washers.
- Clean the disassembled parts with brake fluid, and check for any clogged passage with compressed air.
- Bleed the brake hose after removing it.

TROUBLE SHOOTING

HYDRAULIC DISK BRAKE

Braking power unsatisfactory

- Air in the brake system.
- Moisture in brake fluid.
- Brake pad and disk contaminated.
- Caliper piston seal worn.
- Master cylinder piston seal worn.
- Brake pad worn.
- Caliper inside contaminated.
- Unsatisfactory caliper sliding part operation.
- Lopsided wear of brake pad and disk.
- Low brake fluid level.
- Clogged brake fluid line.
- Disk bent or distorted.
- Caliper piston seized or worn.
- Master cylinder piston seized or worn.
- Disk worn.
- Master cylinder inside contaminated.
- Brake lever bent.

Hard brake lever movement or unsatisfactory return

- Brake system clogged.
- Caliper piston seized or worn.
- Unsatisfactory caliper sliding part operation.
- Brake fluid line clogged.
- Caliper piston seal worn.
- Master cylinder piston seized or worn.
- Brake lever bent.

Brakes drag

- Brake pad and disk contaminated.
- Improper wheel alignment.
- Lopsided wear of brake pad and disk.
- Disk bent or distorted.
- Unsatisfactory caliper sliding part operation.
- Hydraulic system contaminated with dust.

MECHANICAL DRUM BRAKE

Poor brake performance

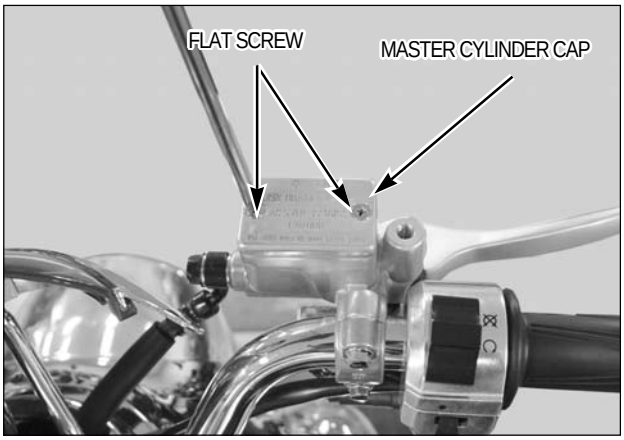
- Improperly adjusted brake.
- Worn brake linings.
- Worn brake drum.
- Worn brake cam.
- Brake cable sticking/needs lubrication.
- Contaminated brake linings.
- Contaminated brake drum.
- Worn brake shoes at cam contact areas.
- Improper engagement between brake arm and camshaft serrations.

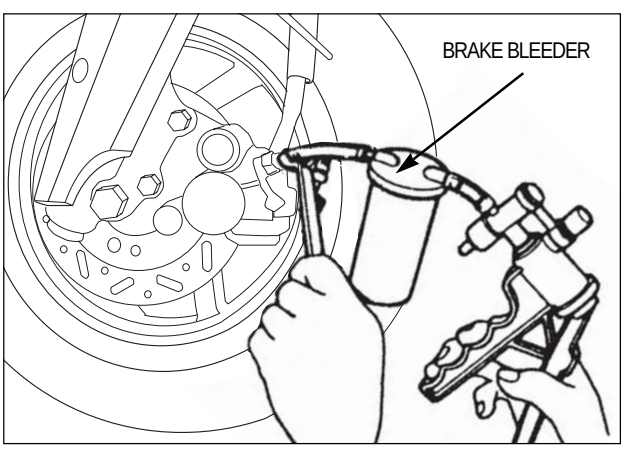
brake lever hard or slow to return

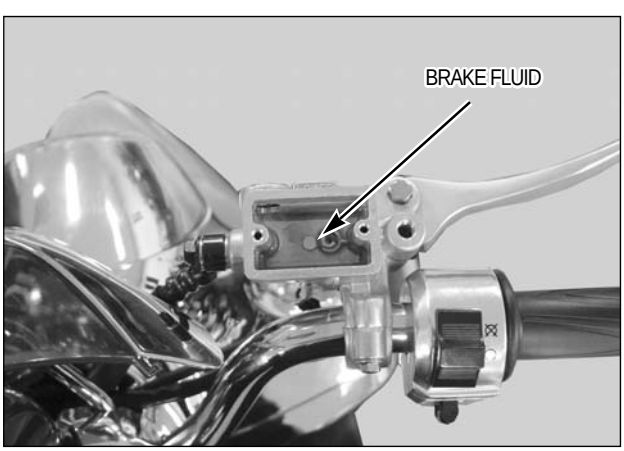
- Worn/broken return spring.
- Improperly adjusted brake.
- Sticking brake drum due to contamination.
- Worn brake shoes at cam contact areas.
- Brake cable sticking/needs lubrication.
- Worn brake cam.
- Improperly installed brake linings.

Brakes squeaks

- Worn brake linings.
- Worn brake drum.
- Contaminated brake linings.
- Contaminated brake drum.







BRAKE FLUID/BLEEDING

BRAKE FLUID CHANGE

CAUTION

- A contaminate disk or pad reduces braking power. Do not allow the disk or pad to be contaminated by oil.
- Replace contaminated pads, and remove pollutants from the disk completely.

NOTE

- Check the brake fluid level often, and replenish new fluid as required. Do not spill fluid on painted, plastic or rubber parts.

- Remove the master cylinder cap, master cylinder holder, and diaphragm from the master cylinder.
- Connect the bleeder hose to the bleeder valve. Loosen the bleeder valve, and pump the brake lever repeatedly.
- When there is no more fluid flowing out of the bleeder valve, stop pumping the brake lever.

AIR BLEEDING

- Fill the reservoir with DOT 3 or 4 brake fluid up to the upper level.

CAUTION

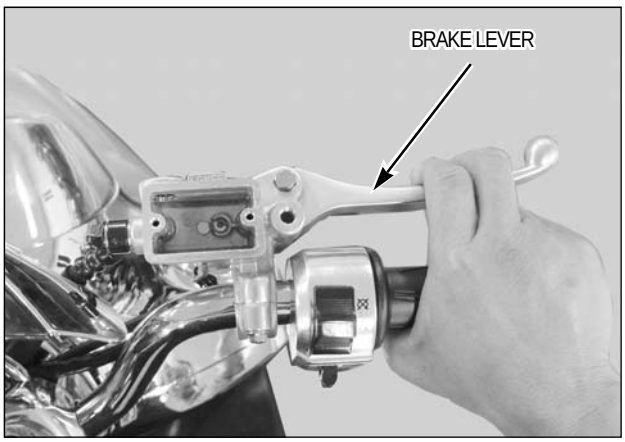
- To prevent chemical changed, do not use different types of brake fluid.

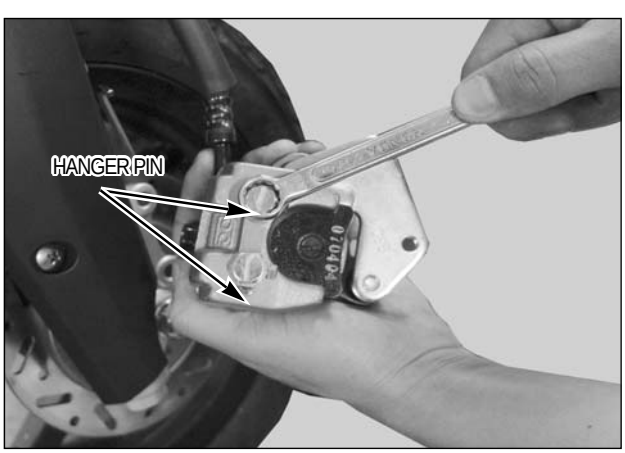
- Connect the recommended brake bleeder to the bleeder valve.
- Loosen the bleeder valve while pumping the brake lever.
- Repeat this operation until the brake fluid flows out of the brake bleeder.

NOTE

- Check the fluid level often, and replenish fluid if the amount of fluid is reduced to the lower level.
- Read the user's manual carefully prior to disassembling or using the brake bleeder.
- Protect the bleeder valve with tape to prevent air from entering the bleeder valve.

- Repeat the above opration until there is no air flowing out of the bleeder hose.
- Squeeze the bleeder valve and operate the brake lever to check the ingress of air.
- Add brake fluid.





- If the brake bleeder is not used, do the following.
- First, fill the brake fluid up to the upper limit line.
- Connect the hose to the bleeder valve to receive brake fluid.

① Squeeze the brake lever completely loosen the bleeder valve 1/2 turn, and tighten it again.

NOTE

· Do not release the brake lever until the bleeder valve is tightened.

② Release the brake lever slowly to its fullest extent, and leave it unattended for a few seconds.
③ Repeat the process specified in iteam ① and ② until there is no more air bubbles coming out of the bleeder valve.

- Check the fluid level often, and add fluid if the fluid level is near the lower level.
- If no air leaks out of the bleeder hose, operate the brake lever to check the presence of air.
- Assemble the bleeder valve.

TORQUE : 0.6kgf · m

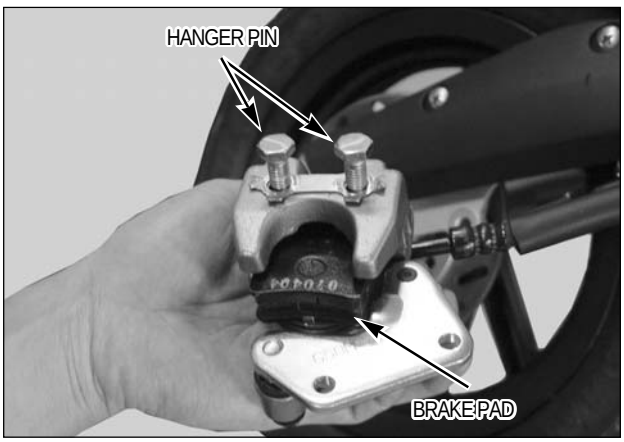
- Add brake fluid up to upper level. Install diaphragm and mater cylinder cap.

TORQUE VALUE : 1.0kgf · m

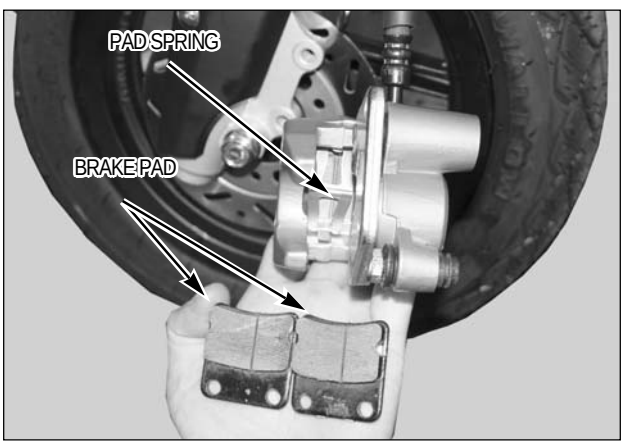
BRAKE PAD REPLACEMENT

- Loosen the 2 front brake caliper fixing bolts from the front fork.
- Remove the front caliper.

- Loosen the hanger pin.



- To install a new brake pad into the brake, press the piston to return to the original position.
- Remove the hanger pin, pad spring, and brake pad.



- Verify that the pad spring is installed in specific position.

NOTE

- When replacing brake pads, replace whole set.
- Do not remove the brake hose when replacong brake pads.

- Install a new brake pad, pad spring, and hanger pin.

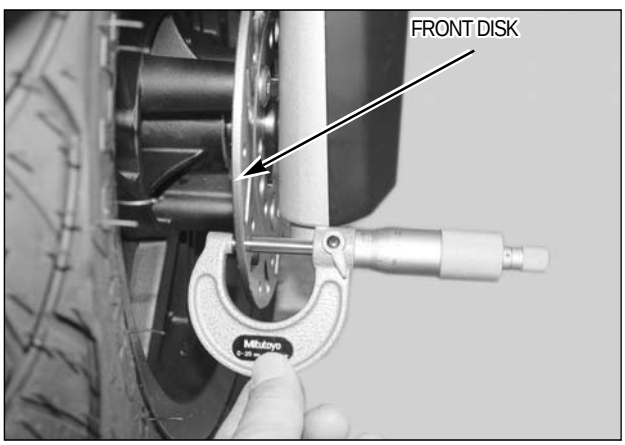
- Install the brake caliper into the left front fork.

NOTE

- Be careful not to damage the brake pad.

● Tighten the caliper braket bolt.

TORQUE : 2.7kgf · m



BRAKE DISK INSPECTION

● Measure the thickness of the disk.

SERVICE LIMIT: 3.0㎜

NOTE

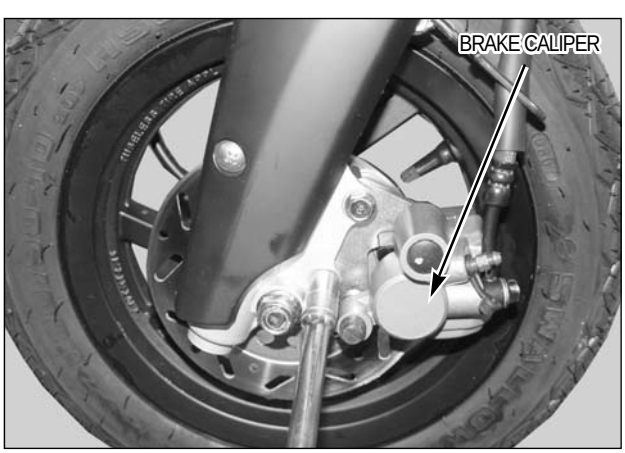
· Measure the brake disk thickness at the several points and replace if the smallest measurement is less than the specified service limit.

● Check the brake disk for bent and twist.

SERVICE LIMIT: 0.4㎜

NOTE

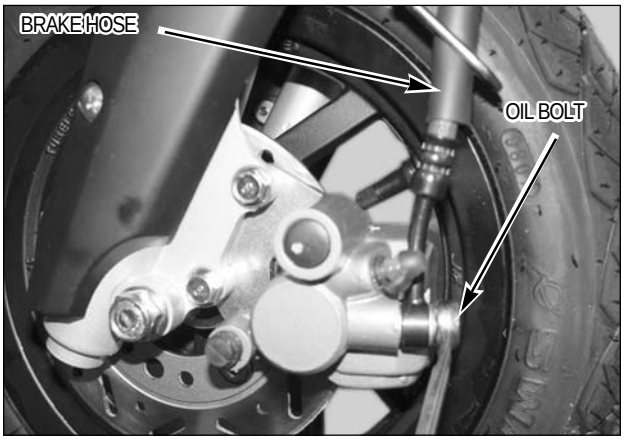
· Replace the brake disk if the disk for damage or crack.



BRAKE CALIPER

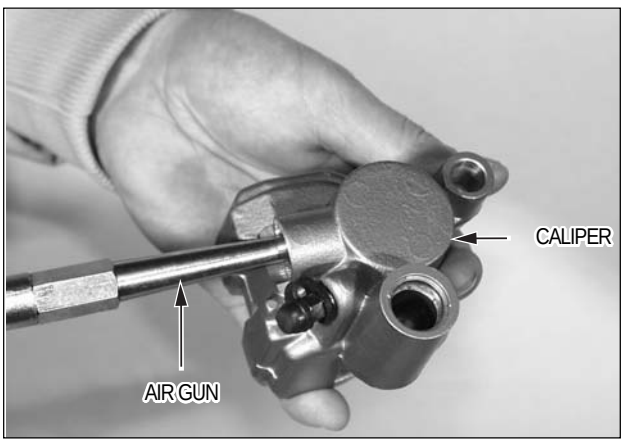
REMOVAL

● Remove the brake oil bolts and the brake hose from the brake caliper.
● Remove the caliper from the L.H. front fork and remove the pad spring, hanger pin and brake pad.



CAUTION

- Pay attention not to let the brake fluid adhere to the parts because it can damage the painted surface.
- Wind the hose joint with cloth to prevent the brake fluid from leaking.
- Clean the removed parts with the brake fluid and make sure that the each port isn't clogged with the compressed air.
- Keep the removed parts in order to avoid dust from adhering.

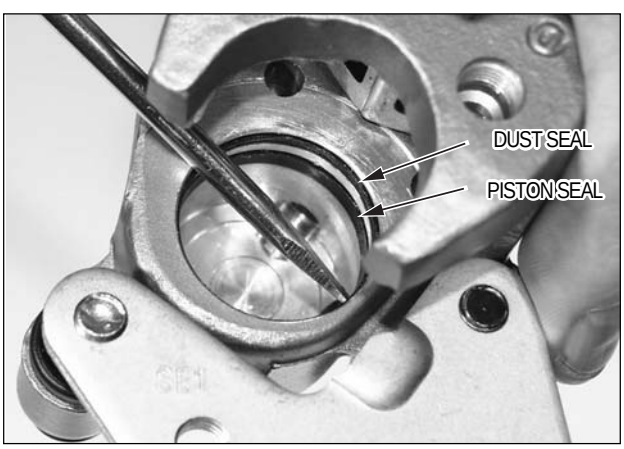


DISASSEMBLY

- Remove the slide pin, the bracket, the pin bush, the boot and pin boot, and the pin bolt from the caliper.
- If there is any wear or damage in the boot, replace it with a new one.
- Wind the caliper with cloth to prevent the piston or brake fluid from leaking.
- Remove the piston from the caliper while blowing the low-pressure air in the opening of the brake hose.

CAUTION

- Never use the high-pressure air or bring the air gun too close.
- Never touch the inside of the caliper



- Disassemble the piston seal and the dust seal

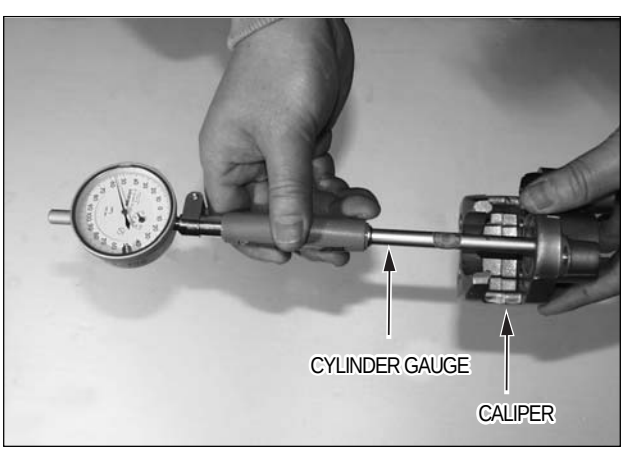
NOTE

- Pay attention not to damage the inner surface of the caliper.

- Clean the piston and the inside of the caliper and remove the oil from the seal groove.

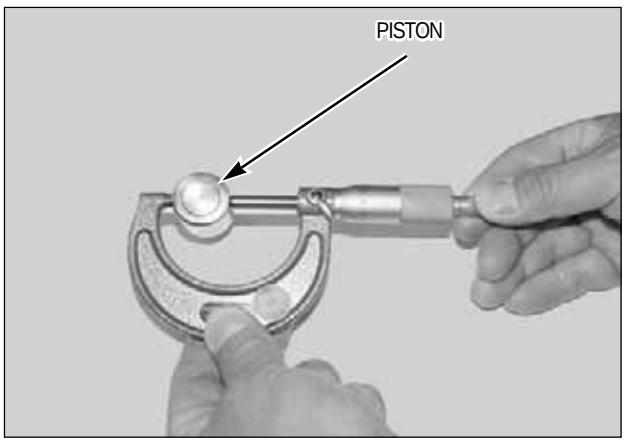
BRAKE CALIPER INSPECTION

Caliper Cylinder



- Check the caliper cylinder bore for scoring, scratches or other damage.
- Measure the caliper cylinder I.D. in X and Y axis at serveral points.
- Replace the caliper cylinder if the largest measurement is beyond the specified service limit.

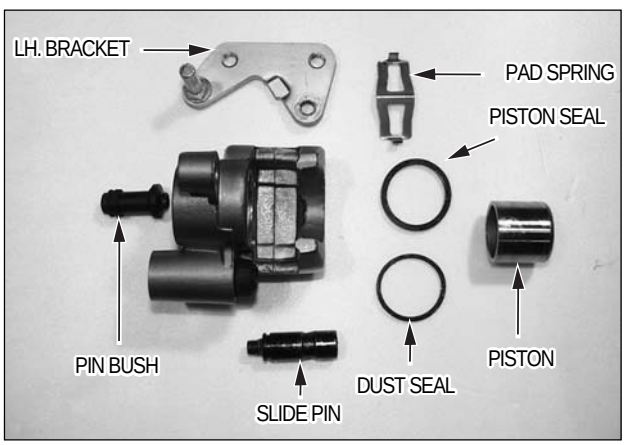
SERVICE LIMIT: 30.2mm



Caliper Piston

- Measure the caliper cylinder O.D. in X and Y axis at serveral points.
- Replace the caliper piston of the smallest measurement is less than the specified service limit.

SERVICE LIMIT: 30.1mm

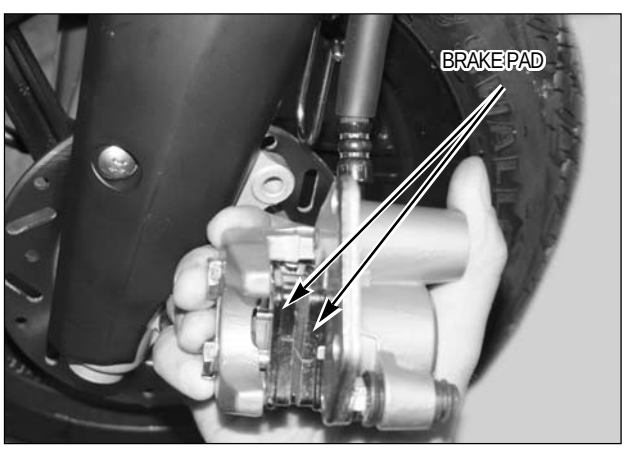


BRAKE CALIPER ASSEMBLY/INSTALLATION

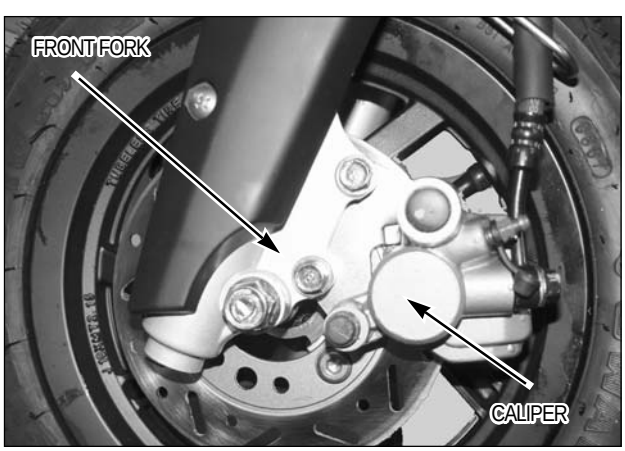
- Clean the piston seal and the dust seal with the brake fluid and install them in the caliper. Install the piston in the caliper with the groove side of the piston facing the pad.

NOTE

- Make sure that each part is free from dust or dirt before reassembly.
- Replace the dust seals and piston seals as a set whenever they are removed.
- When cleaning with the brake fluid, use the specified brake fluid.



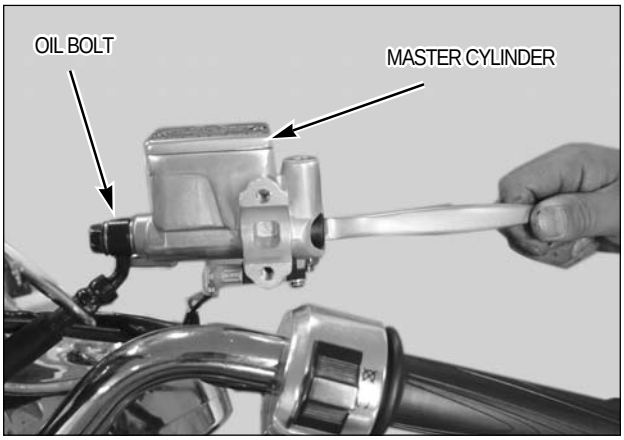
- Apply the silicone grease to the pin bush.
- Connect pin bush to the portion of the caliper.
- Install the pad spring in the caliper.
- Install the caliper pin bolt and the slide pin in the caliper.
- Install the brake pad and the hanger pin in the caliper.



- Connect the brake hose to the caliper, and install 2 sealing washers and the brake hose bolt.

TORQUE : 3.5kgf · m

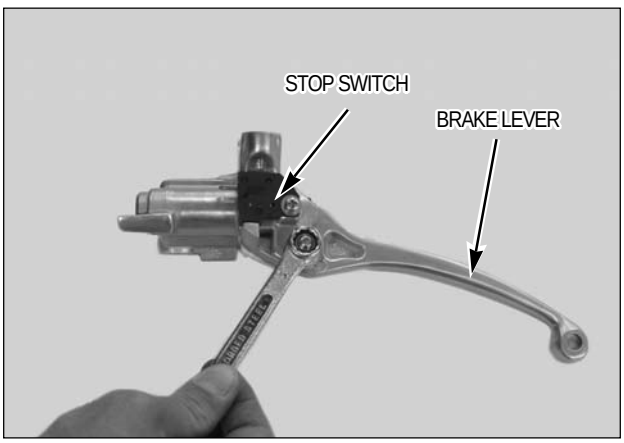
- Install the brake caliper on the front fork.
- Fill the brake fluid, and bleed air.



MASTER CYLINDER

REMOVAL

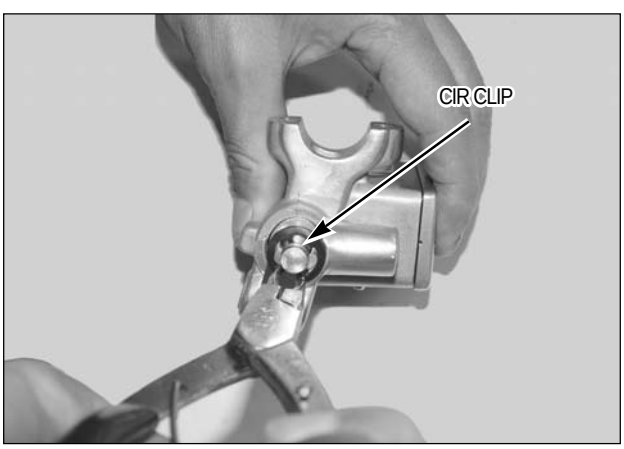
- Disconnect the front brake switch wire.
- Drain the brake fluid.
- Remove the brake hose from the master cylinder.



CAUTION

- Brake fluid causes damage to the painted, plastic or rubber parts. Do not spill fluid on these parts.
- If contaminated, gently wipe off the fluid with a piece of cloth or wash in water. Close hose joints properly to prevent leakage of brake fluid.
- Clean the disassembled parts with brake fluid, and use compressed air to verify each passage is not clogged.
- Do not allow the disassembled parts to be contaminated by waste material or dust.

- Remove the master cylinder holder, and lift out the master cylinder.

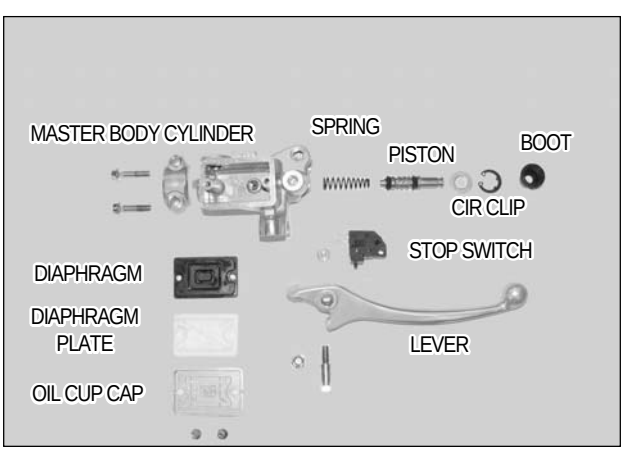


DISASSEMBLY

- Remove the front stop switch.
- Remove the piston boot, cir clip from the master cylinder.

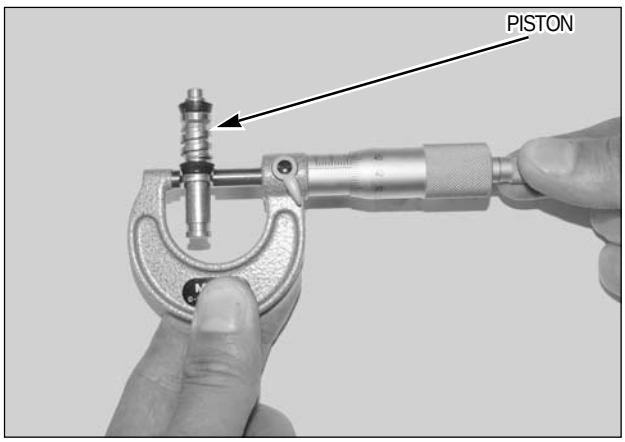
TOOL : SNAP RING PLIERS

- Remove the washer, piston, spring from the master cylinder.
- Clean the master cylinder, reserve, master piston with the recommended brake fluid.



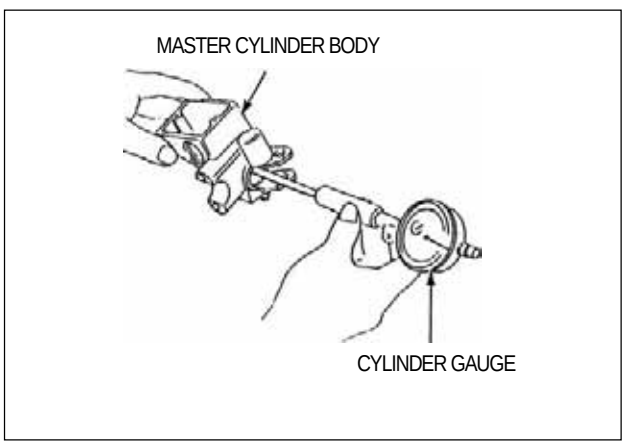
MASTER CYLINDER INSPECTION

- Check the piston periphery for kink or scratch.
- Check the primary and secondary cups for wear.



● Measure the O.D of the master pin.

SERVICE LIMIT: 10.90mm

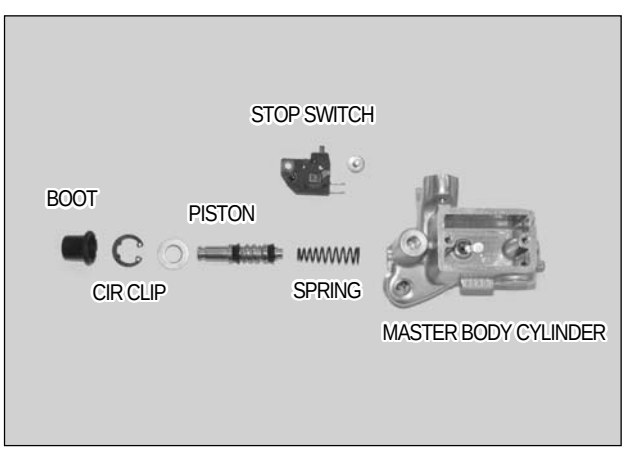


NOTE

· If there is any leak of fluid when installing new piston, it may indicate the side wear of the cylinder by the direction of the piston contacting face. In this case, the master cylinder must be replaced also.

● Check the master cylinder for scores, scratches or nicks and replace if necessary.
● Measure the moster cylinder I.D. in X and Y axis at serveral points.

SERVICE LIMIT: 11.08mm

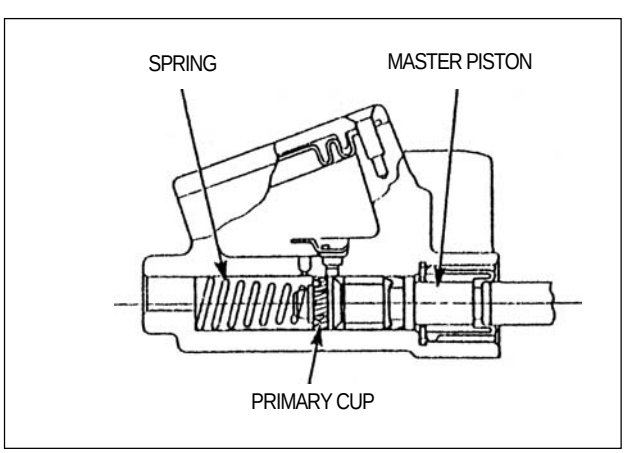


MASTER CYLINDER ASSEMBLY/ INSTALLATION

CAUTION

· Replace the piston, spring, cups and snap ring as a set.
· Be sure that each part is free from dust or dirt before reassembly.
· When cleaning with the brake fluid, use the specified brake fluid.

● Coat the piston cup with the fresh brake fluid and install it on the piston. Install the spring with its larger diameter end toward the master cylinder.



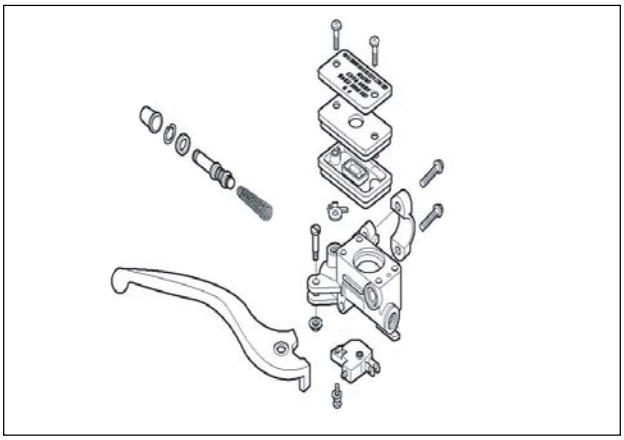
CAUTION

· When installing the cups, do not allow the lips to turn inside out. (Refer to the drawing.)
· Note the installation direction of the snap ring.
· Be certain that the snap ring is seated firmly in the groove.

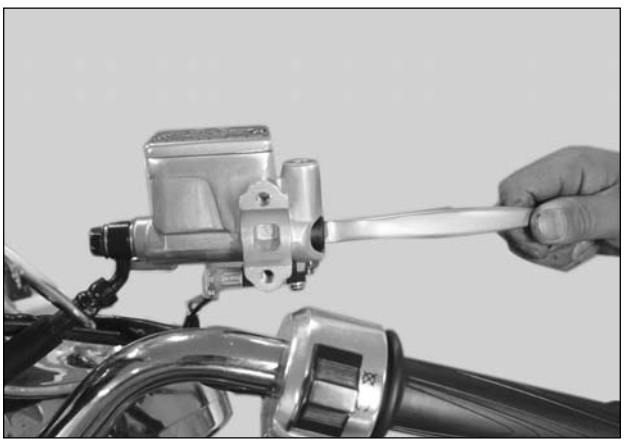
● Install the rubber boot in the groove properly.

TOOL : SNAP RING PLIERS

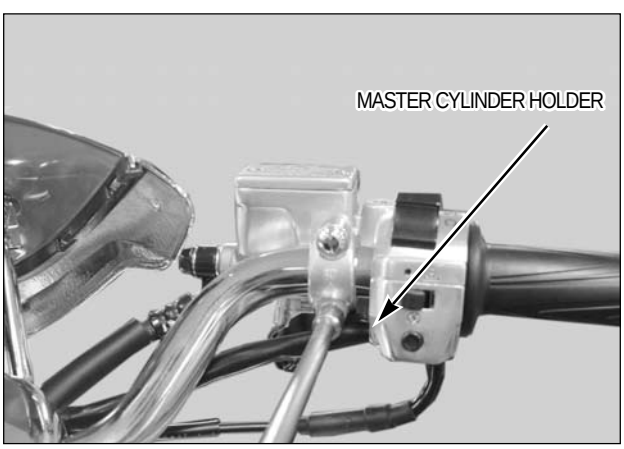
● Install the boot master to the cylinder.



- Install the brake hose to the master cylinder with 2 new sealing washers and the hose bolt.
- Install the stop switch.
- Install the brake lever.



- Install the master cylinder into the master holder.

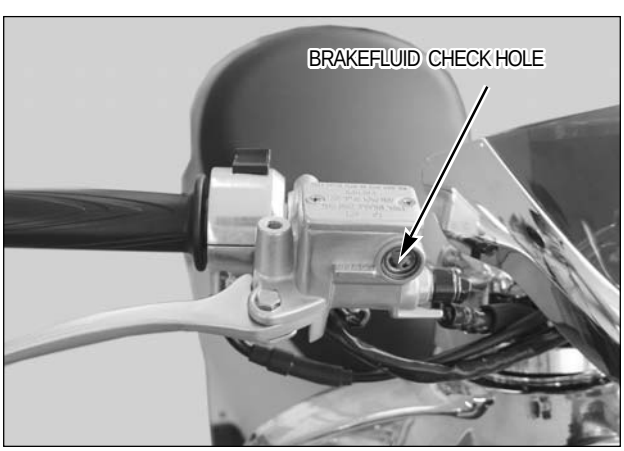


NOTE

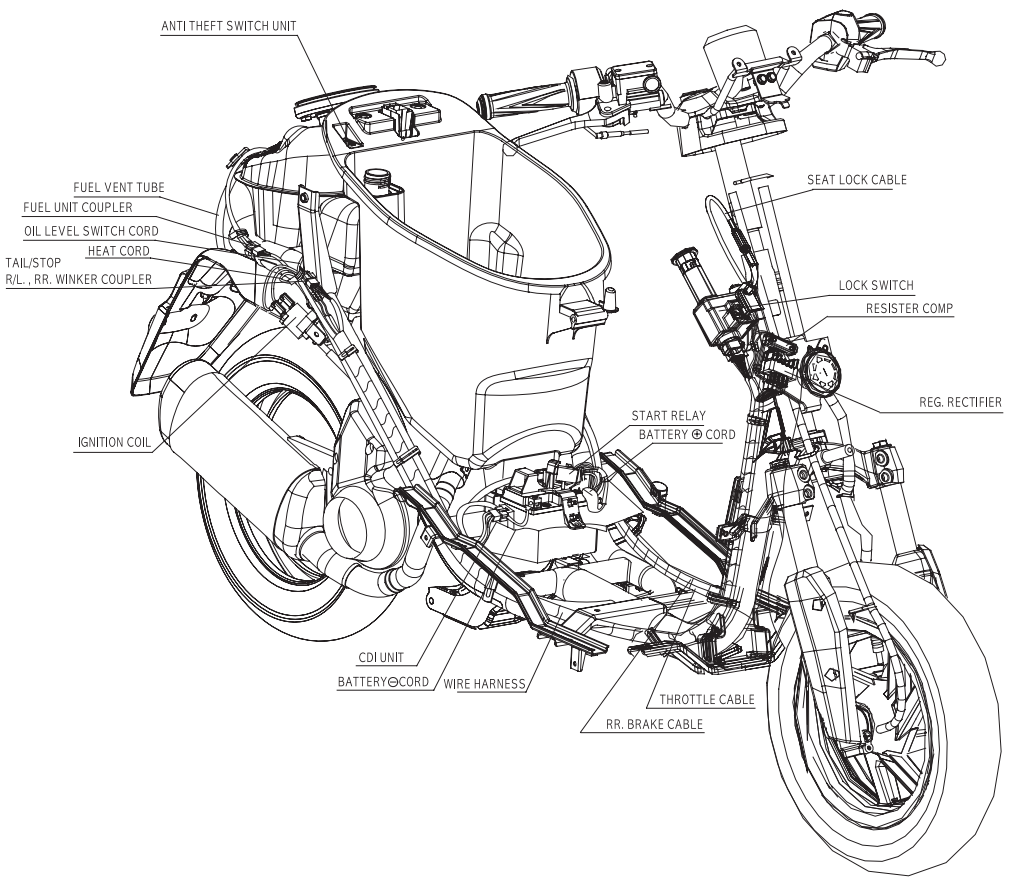
- Install the holder with its "UP" mark facing upwards, and align the holder joint with the punch mark on the handle bar.
- Tighten the holder upper bolt first.

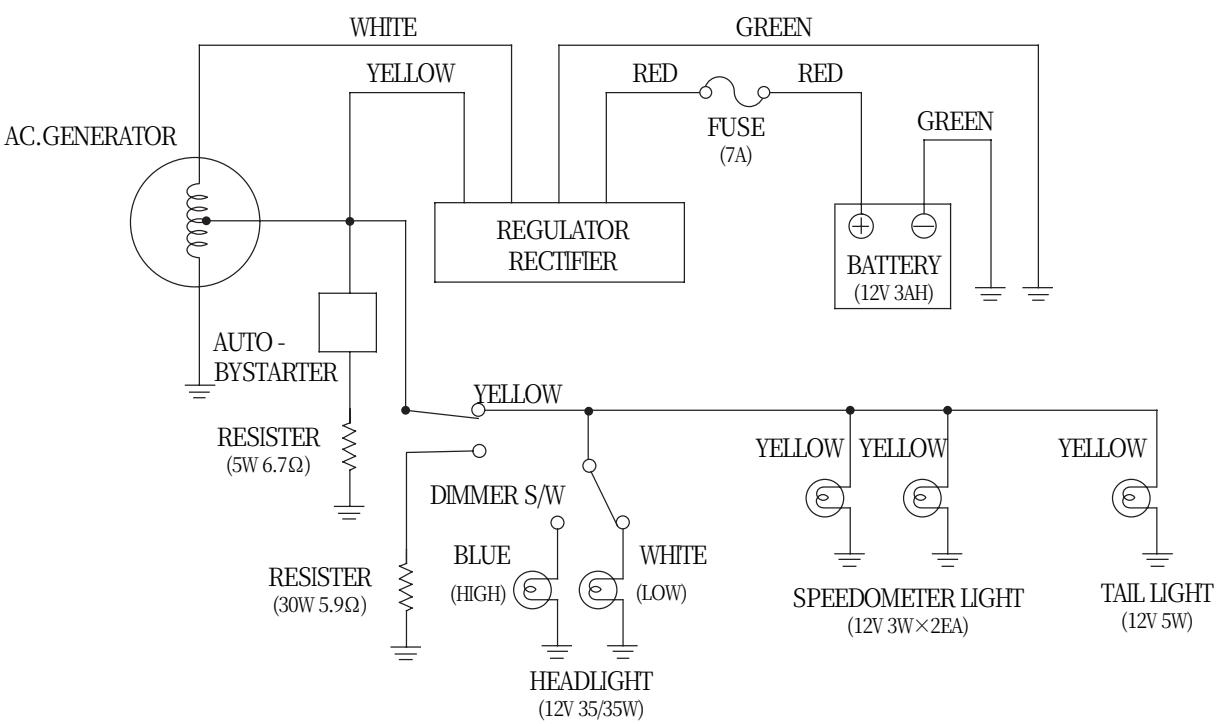
TORQUE VALUE : 2.5~3.5 kgf · m

- Connect the brake stop swtich wire.
- Fill the brake fluid, and bleed air.



- Replenish the brake fluid, if necessary.


ANTI THEFT SWITCH UNIT
FUEL VENT TUBE
FUEL UNIT COUPLER
OIL LEVEL SWITCH CORD
HEAT CORD
TAIL/STOP
R/L., RR. WINKER COUPLER
SEAT LOCK CABLE
LOCK SWITCH
RESISTER COMP
REG. RECTIFIER
START RELAY
BATTERY ⊕ CORD
IGNITION COIL
CDI UNIT
BATTERY⊖CORD
WIRE HARNESS
THROTTLE CABLE
RR. BRAKE CABLE


WHITE
GREEN
YELLOW
RED
RED
FUSE
(7A)
GREEN
AC.GENERATOR
REGULATOR
RECTIFIER
BATTERY
(12V 3AH)
AUTO -
BYSTARTER
YELLOW
RESISTER
(5W 6.7Ω)
DIMMER S/W
YELLOW
YELLOW
YELLOW
BLUE
WHITE
RESISTER
(30W 5.9Ω)
(HIGH)
(LOW)
SPEEDOMETER LIGHT
(12V 3W×2EA)
TAIL LIGHT
(12V 5W)
HEADLIGHT
(12V 35/35W)

13. BATTERY/CHARGING SYSTEM

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SERVICE INFORMATION

WARNING

- Do not place flammable materials near battery when charging. This can be a fire hazard as hydrogen gas is created during charging battery.
- Do not allow battery acid to come into contact with clothes, skin or eyes. Battery acid contact can cause burns or loss of eye sight. If contact occurs, thoroughly clean with water, and if acid enters eyes, flush with water and see a doctor.
- If battery acid gets on clothing, as it can seep through or make a hole through the clothing and make its way to the skin, make sure to change clothing that has come into contact with battery acid and wash the battery acid from the clothes.

CAUTION

- This vehicle has a maintenance-free(MF) battery. Because MF batteries use different charging equipment, take special care when performing maintenance and especially when replacing parts. Not all regular battery equipment is compatible with MF batteries.
- When charging the battery, remove the battery from the frame and do not open stopper.
- There is the possibility of damaging the regulator/rectifier, etc. if the terminal or coupler is separated/connected when electricity is over flowing through the electrical devices. Make sure to turn the main switch OFF when performing maintenance to the charging equipment.

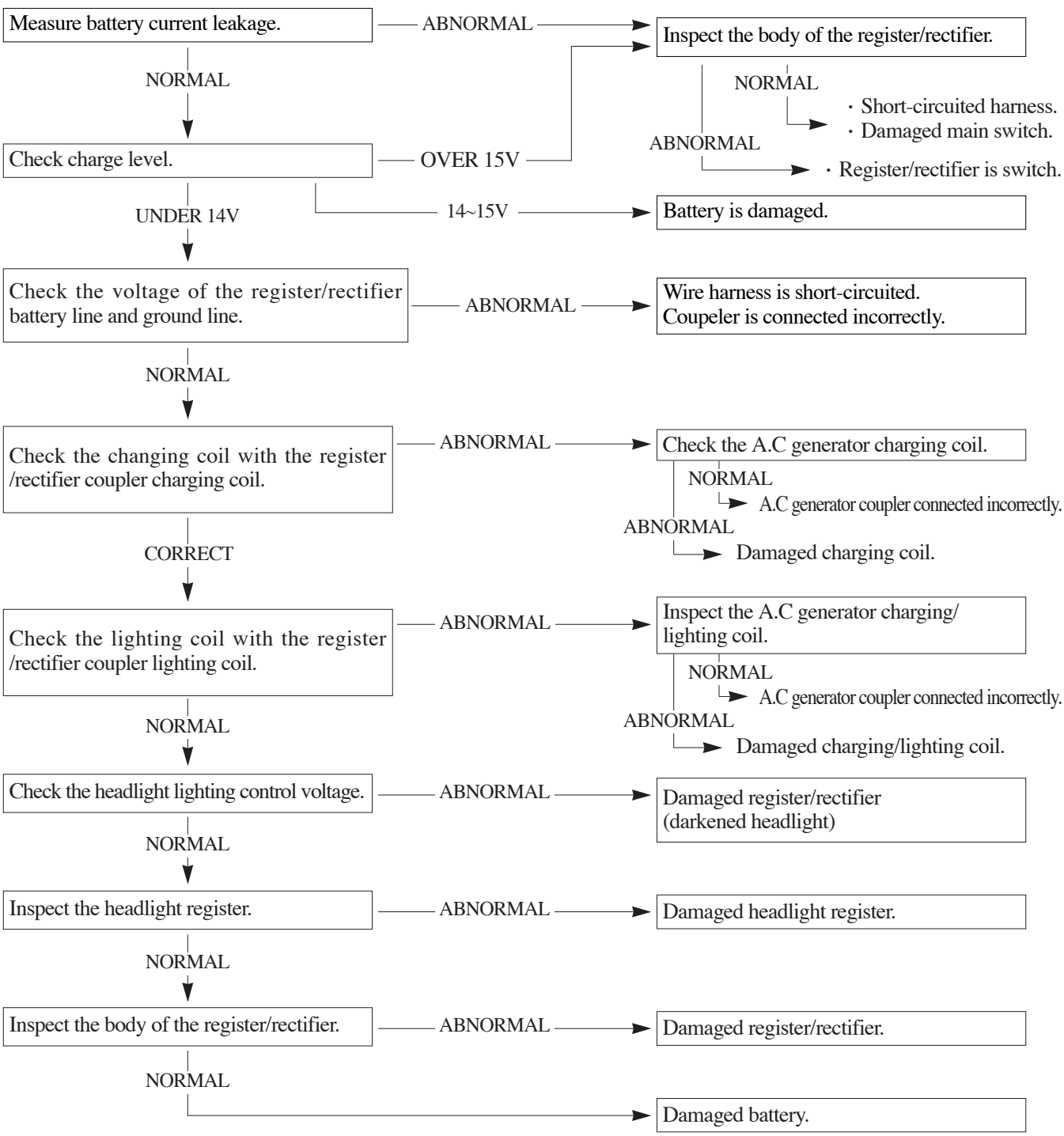
- If the battery is allowed to repeatedly lose all its charge, is repeatedly over-charged, or if it is left in an un-charged state, the battery can be damaged, its life can be reduced, or it can lose some of its strength. It is important to note here that the battery will naturally last 2-3 years of normal use, and although it will re-charge, its load is reduced, leading to a loss in battery strength.
- It is possible for the battery to become overcharged from battery body load. If a battery cell becomes short-circuited and if a state develops where voltage is not created between the terminals, the regulator will not operate and excessive voltage will develops where voltage is not created between the terminals, the regulator will not operate and excessive voltage will develop in the battery and normal cell electrolytes will decrease.
- If the vehicle is not used for a long period, make sure to chage the battery every three months. If not so, the battery ability to store electricity is reduced.
- A new MF battery will not necessarily be ready for use in the vehicle with only the adding of battery acid. Make sure to charge battery after the adding of battery water in the following instances :
  -When open voltage (voltage between terminals) does not reach 12.4V after the adding of battery water : charge until open voltage reaches at least 12.8V.
  -When battery acid temperature is under 0℃ : charge normally for 2-3 hours.
- See the part location drawing for the location of charging system parts. (⇨13-0)
- Follow the trouble shooting for charging equipment inspection. (⇨13-2)
- The charging equipment may ofter appear to be malfunctioning if the couplers or connectors are incorrectly attached. Make sure to check these connection before starting maintenance work on the charging equipment.

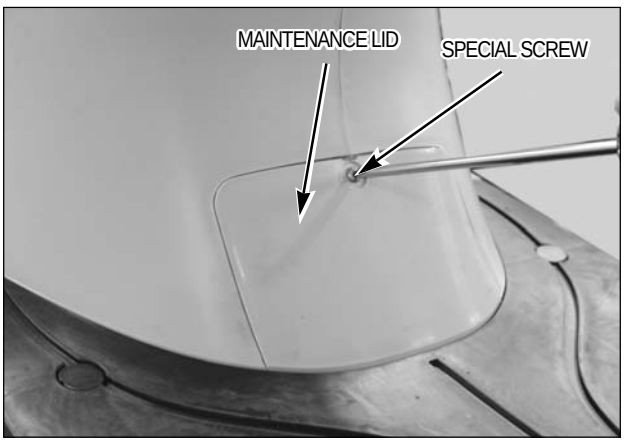
TROUBLE SHOOTING

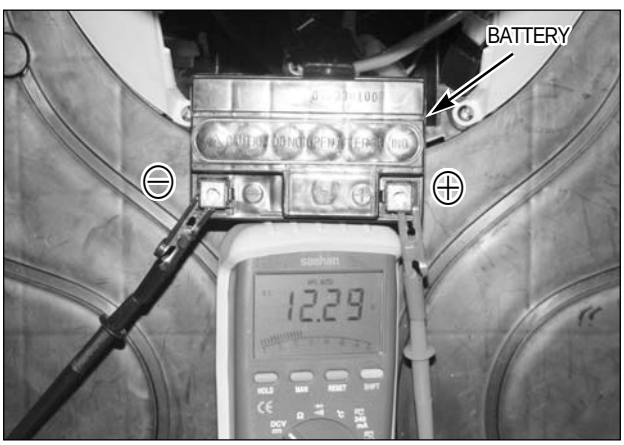
Barrery is Overcharged

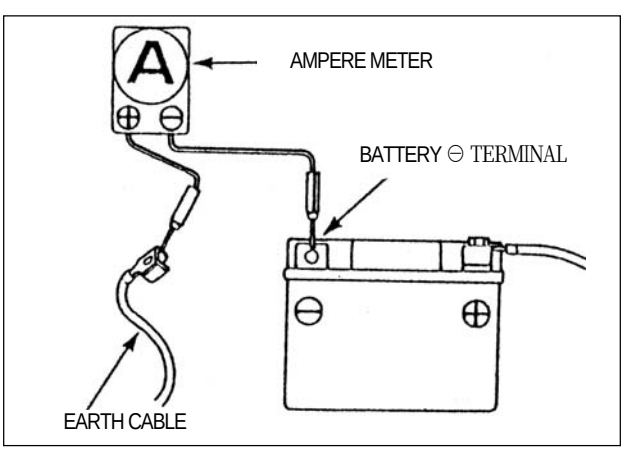
- Headlight bulb is out.
- No headlight beam wire.
- Headlight register is damaged (disconnected).
- Lighting switch is connected incorrectly.
- Regulator/retifier is not grounded connected incorrectly.

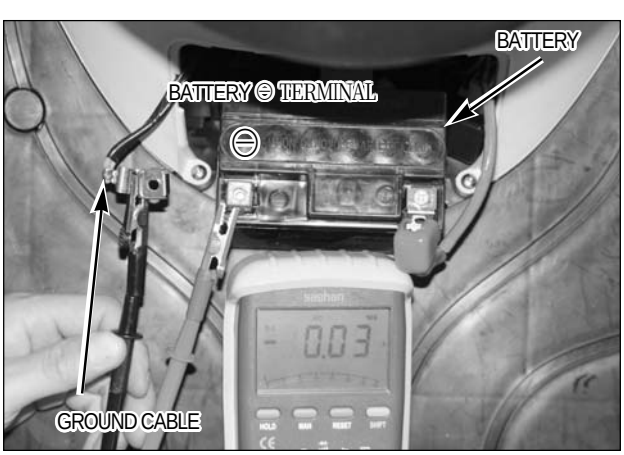
Problems with the Charging System











BATTERY REMOVAL/INSTALLATION

- Loosen lpcs special screw securing maintenance lid.
- Remove the maintenance lid.
- After removing the negative "⊖" terminal of battery firsty, must remove the positive "⊕" terminal of battery.
- Install in the reverse order of removal.

BATTERY INSPECTION

CHARGE LEVEL (OPEN-CIRCUIT VOLTAGE) INSPECTION

- Remove the battery cover and disconnect the battery terminals.
- Measure the voltage between the battery terminals.

- FULLY CHARGED : 12.8-13.0V
- INSUFFICIENTLY CHARGED : UNDER 12.3V

NOTE

· Use a digital voltmeter when measuring charge level.

- Measure 30 minutes later.

TOOLS : DIGITAL TESTER

CHARGING SYSTEM INSPECTION

LEAK TEST

- Trun off the main switch, and remove the earth cable from the battery. Connect an ampere meter between the battery terminal and the earth cable, and check current when the main switch is turned off.

CAUTION

· Use an ampere meter while sequentially changing its measuring range from large to small. If the current level greater than the measuring limit is measured, the ampere meter fuse may be cut.
· Do not turn on the main switch while current is being measured.

LEAK CURRENT : Not to exceed 1mA

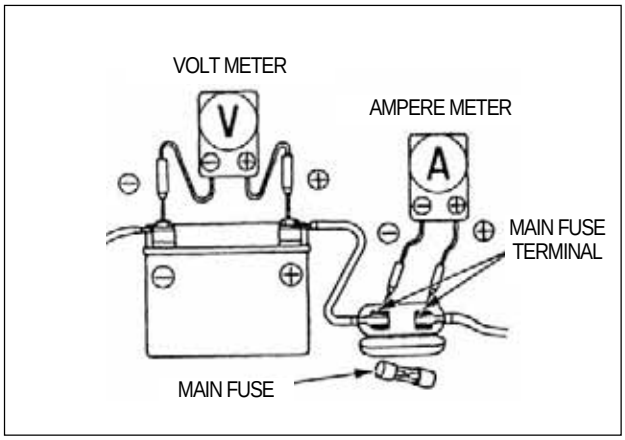
BATTERY ADJUSTMENT VOLTAGE CHECK

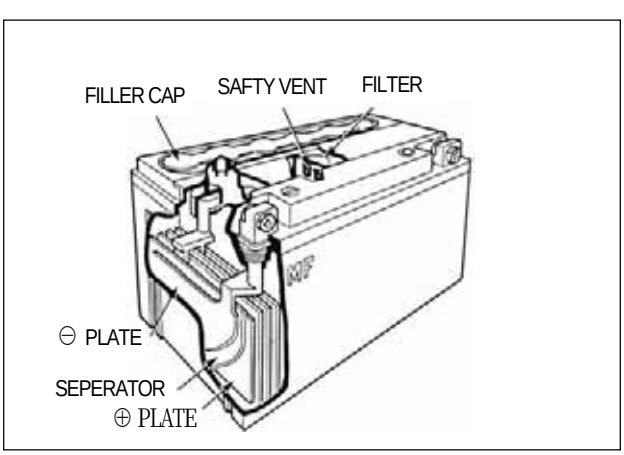
- Connect the voltmeter between the battery terminals.
- Connect the amperemeter between the main fuse termanals.
- Start the engine and measure the charging voltage and ampere while incresae the rpm gradually.

CONTROL VOLTAGE (CHARGING SIDE : 14.5±0.5V / 5,000rpm
(LAMP SIDE): 13.1±0.5V / 5,000rpm

NOTE

· Check with fully charge the battery which has the voltage between terminal of 12.8V~13.0V.
· In case that the engine is started by the starter motor, measurement must be performed after accelating (charging) for 10 seconds.





CHARGING VOLTAGE CHECK

- Use the full change battery (12.8~13.2V).
- In case that charging the voltage is not controled properly, the battery cannot be used due to the battery solution dried up by over charging and the deformation caused by the damage of the plates.
- Battery control voltage : 14.5±0.5V(5000rpm).

NOTE

· If you have 1EAof rester, measure current first.

CHARGING CURRENT CHECK

- Check the charging current passed through the generator assy, regulator comp is normal with the discharged battery.

CHARGING CURRENT : 1.5~2.4A / 5,000rpm
TOOLS : DIGITAL CIRCUIT TESTER

BATTERY CHARGING

- Remove the battery from the frame, and connect it to the battery charger.
  - Connect the charger positive (-) cable to the battery positive (+) terminal.
  - Connect the charger negative (+) cable to the battery negative (-) terminal.

NOTE

· Do not connect the charger to the battery coupler terminals.

- Never open the sealed filler cap.

WARNING

· The battery generates hydrogen gas which can be highly explosive Do not smoking or allow flames or sparks near the battery, easpecially while charging it.
· Turn power ON/OFF at the charger, not at the battery terminals. If the cable is disconnected or connected at the battery terminal during charging, spark may jump and ignite the flammable gas.
· Always remove the battery from the frame when charging it. If the battery is charged while installed in the frame, the electrolyte may spill and corrode the frame components.

CHARGING CURRENT : 0.3A
CHARGING TIME : 8~10h

WARNING

· Do not let the electrolyte temperature rise above 45 ℃ (113℉) If the electrolyte temperature becomes too high, lower the charging current.
· Quick-charging will shorten the battery life and cause battery damage. It chould only be done in emergency; slow-charging is prefered.

HEADLIGHT VOLTAGE INSPECTION

● Remove the front cover. (⇨3-5).

CAUTION

· Check voltage with the headlight coupler connected.

● After starting the engine, place the dimmer switch to HI and check the boltage between the blue (+) and green (-) wires of the headlight coupler.

CAUTION

· Measurement is performed in ACarea.

CONTROL VOLTAGE : 12.6 ~ 13.6V / 5,000rpm

● If voltage is incorrect, check the regulator/rectifier.

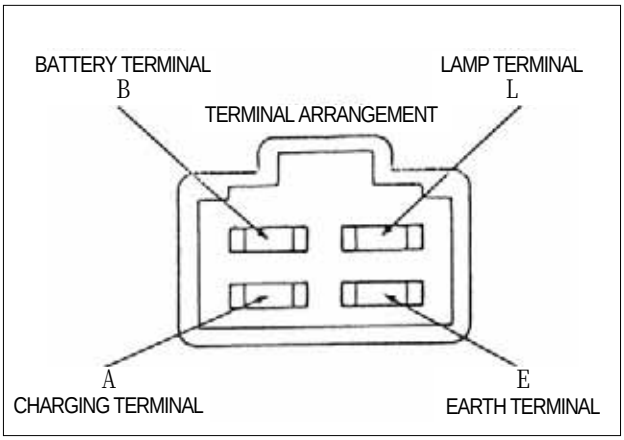
REGULATOR/RECTIFIER INSPECTION

HARNESS CIRCUIT INSPECTION

● Remove the front cover. (⇨3-5).
● Remove the 4P coupler of the regulator/rectifier and inspect the wiring circuit in the main harness side terminal.

ITEM	MEASUREMENT LOCATION	LEVEL	AREAS OF INSPECTION IF INCORRECT
BATTERY WIRE	Voltage between red "⊕" and green "⊖"	There must be battery voltage	Damaged, disconnected, main fuse/harness
CHARGING COIL	※Resistance between white wire and earth wires. Disconnect the starter.	0.4~1.0 Ω (20℃)	AC generator (charging, lighting coil coupler connection damage) resister (6.7 Ω 5W) headlight lighting circuit.
LIGHTING COIL	※Resistance between yellow wire and earth wires. Disconnect dimmer switch connection.	0.2~0.8 Ω (20℃)	

Inspect ※ part at least 10 minutes later.

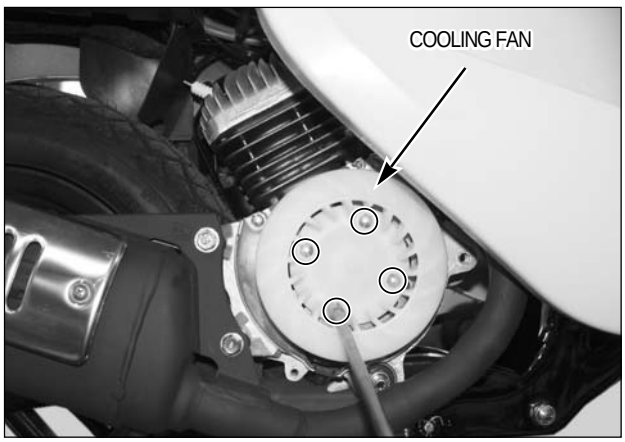


REGULATOR/RECTIFIER INSPECTION

● If the inspection of the harness side proves to be satisgactory, check the regulator/rectifier coupler for faulty connection, and measure the resistance between the terminals of the regulator/rectifier.

RESISTANCE VALUE

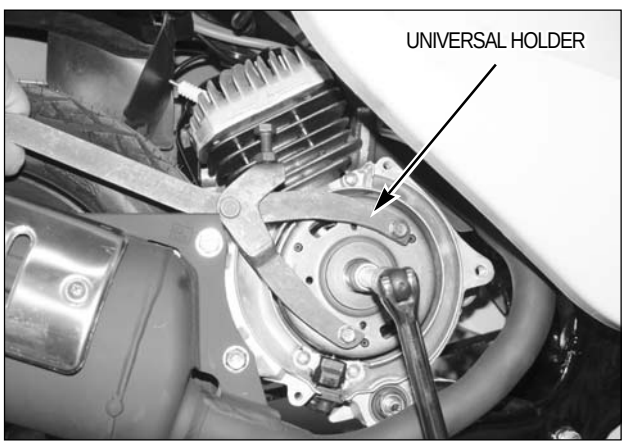
Tester ⊕ / Tester ⊖	R	B	Y	G
A		∞	3-50	∞
L	∞		∞	5-100
B	∞	∞		∞
E	∞	5-100	∞	



A.C GENERATOR

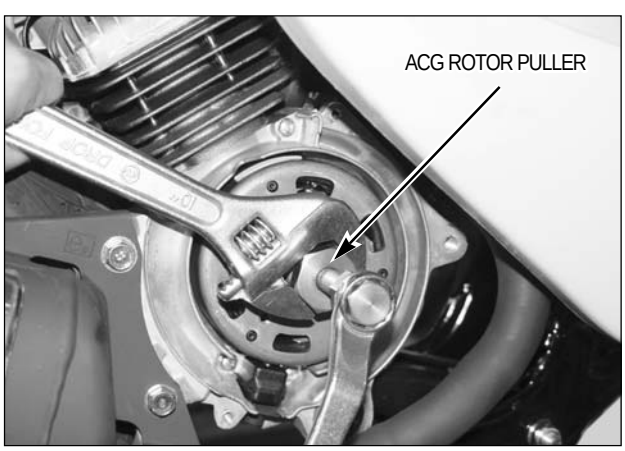
REMOVAL

- Remove the plug cap.
- Loosen the 2 flange bolts, remove the fan cover.
- Loosen the 4 cooling fan fixing flange bolts, remove the cooling fan .



- Hold the flywheel with a universal holder.

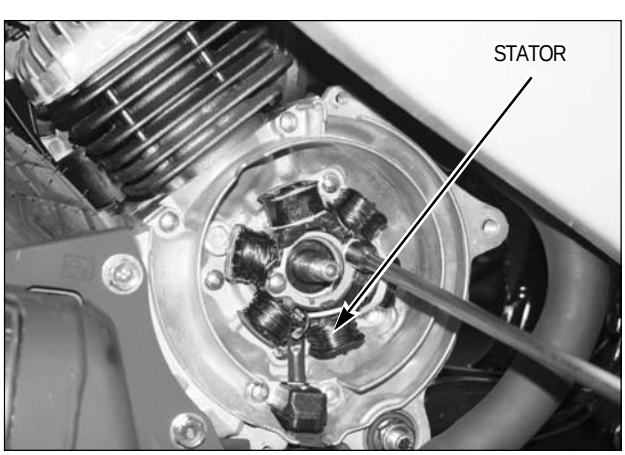
TOOL : UNIVERSAL HOLDER



- Remove flyweel with a ACG rotor puller.

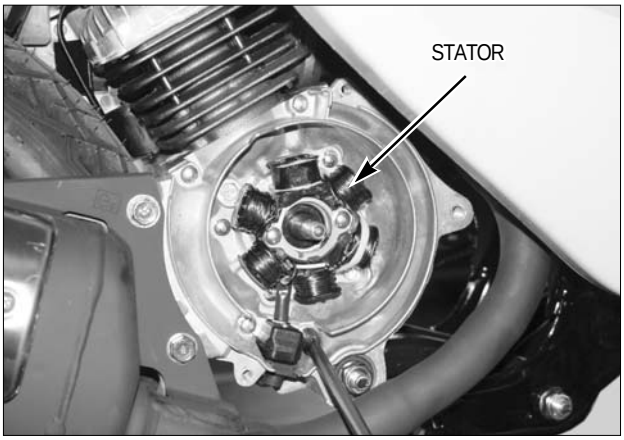
TOOL : ACG ROTOR PULLER 0750-00004

- Loosen the 2 pulse generator fixing flange bolts, remove the pulse generator.
- Loosen the 2 stator fixing flange bolts.
- Remove the grommet from the crankcase cover.
- Remove the connector/couler on the wire harness or starter motor. Remmove the ground wires.
- Remove the stator.



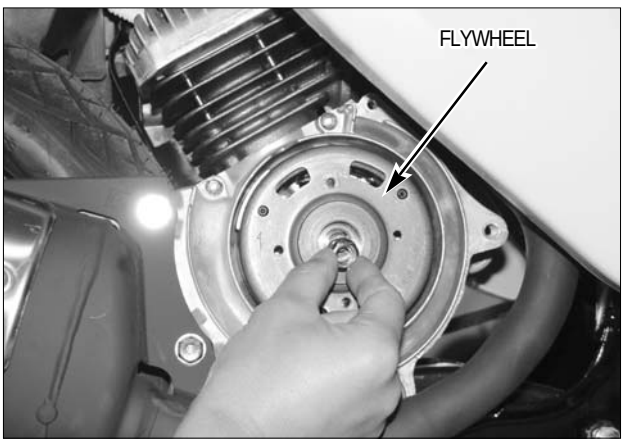
NOTE

- Insert the puller shaft and remove the flyweel after inserting the ACG rotor puller and securing it with spanner.
- The flyweel may easily removed if you rotate the puller while topping the roller shaft with metal hammer.
- Always use a holder and a puller to remove the flywheel. Do not try to remove the flyweel by hammering directly on it. The crankshaft or components could be damaged.
- Remove the wooddruff key with care not to lose it.



STATOR INSTALLATION

- Note the direction of stator, and install the stator on the crankcase.
- Install the grommet to R. crankcase cover.
- Install AC generator wire couler to wire harness.
- Install the connector to starter motor, then install the ground wire.



FLYWHEEL INSTALLATION

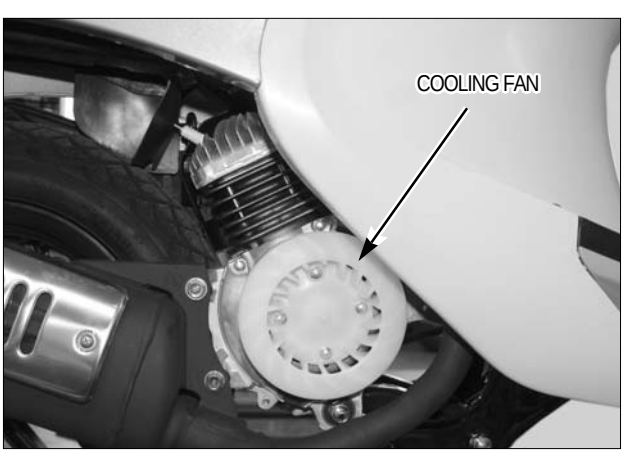
- Clean the tapered portion of the crankshaft.
- If the flywheel is installed with dust or dirt on the taper, the taper will not make secure contact with the flywheel and there will be excessive force on the woodruff key.
- Insert the woodruff key into the key groove in the crankshaft.
- Set the flyweel groove to the woodruff key and install the flyweel on the crankshaft.

CAUTION

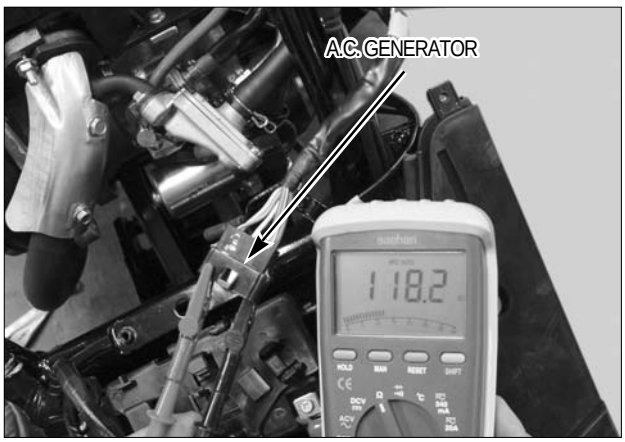
· Before installing the flyweel, check that no nuts or bolts are magnetically attached to the flywheel. Installing the flywheel with anything attached to it could damage the stator coil.

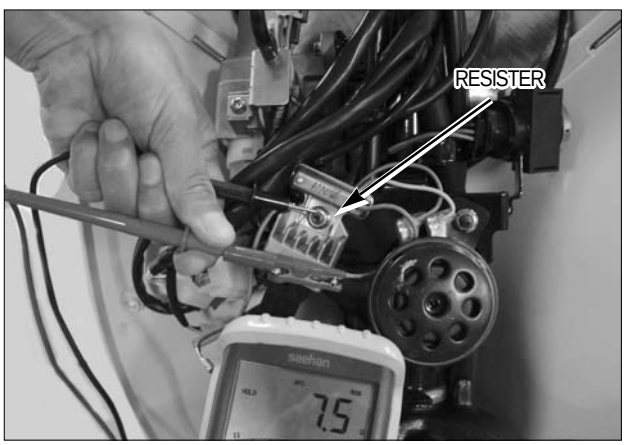
- Hold the flywheel rotor with a holder and tighten the bolt (nut) to the specified torque.

TORQUE : 4.0kgf · m



- Install the colling fan.
- Install the fan cover.





A.C. GENERATOR(CHARGING COIL) INSPECTION

NOTE

· This test is done with the starter mounted to the engine.

- Remove the luggage box.
- Disconnect the AC generator coupler.
- Measure the resistance of the charging coil (between the white wire and ground) and the lighting coil (between the yellow wire and ground).

STANDARD RESISTANCE (20℃)
BETWEEN WHITE WIRE AND GROUND : 0.4~1.0 Ω
BETWEEN YELLOW WIRE AND GROUND : 0.2~0.8 Ω

RESISTER INSPECTION

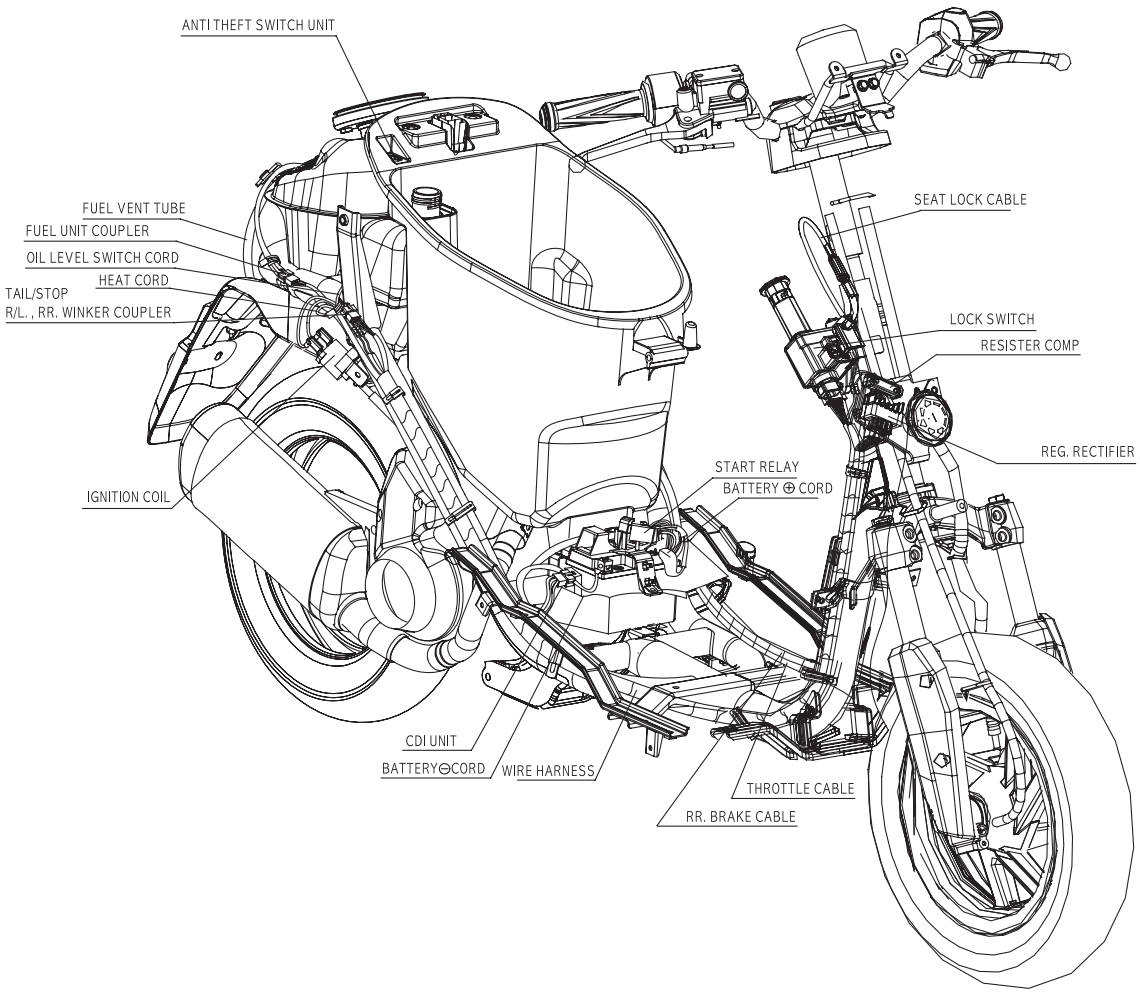
- Remove the front cover (3-5).
- Measure the resistance between the register lead wire and ground.

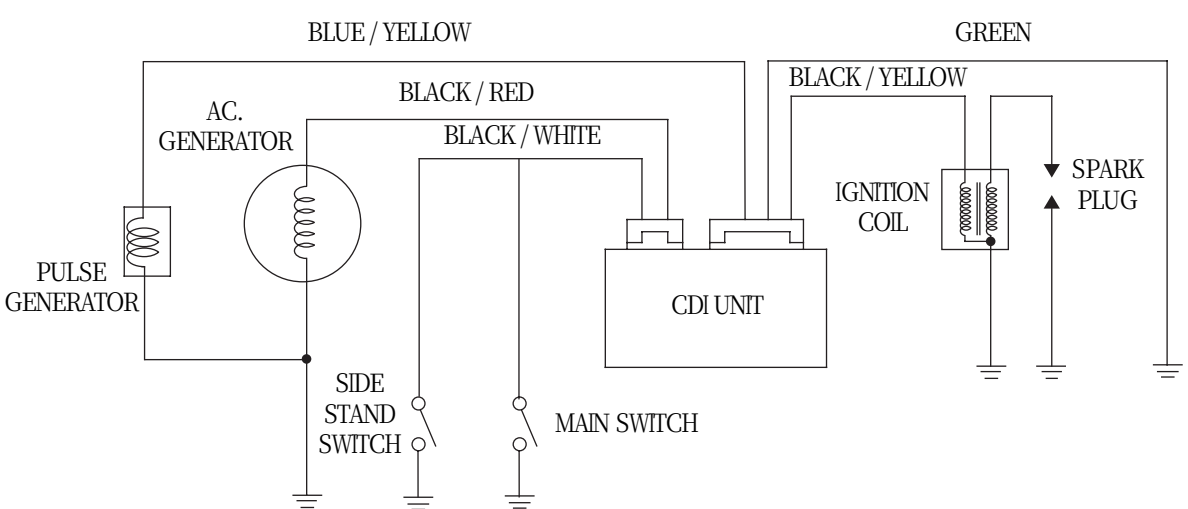
STANDARD VALUE (20℃)
RESISTER (6.7 Ω 5W) GREEN/BLACK/BODY GROUND : 6.3~7.1 Ω
RESISTER (5.9 Ω 30W) PINK/BODY GROUND : 5.6~6.5 Ω

NOTE

· Problems with the resister are caused by operational problem of the starter.

MEMO


ANTI THEFT SWITCH UNIT
FUEL VENT TUBE
FUEL UNIT COUPLER
OIL LEVEL SWITCH CORD
HEAT CORD
TAIL/STOP
R/L., RR. WINKER COUPLER
IGNITION COIL
SEAT LOCK CABLE
LOCK SWITCH
RESISTER COMP
REG. RECTIFIER
START RELAY
BATTERY ⊕ CORD
CDI UNIT
BATTERY⊖CORD
WIRE HARNESS
THROTTLE CABLE
RR. BRAKE CABLE


BLUE / YELLOW
GREEN
BLACK / YELLOW
BLACK / RED
AC.
GENERATOR
BLACK / WHITE
IGNITION
COIL
SPARK
PLUG
PULSE
GENERATOR
CDI UNIT
SIDE
STAND
SWITCH
MAIN SWITCH

14. IGNITION SYSTEM

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IGNITION COIL · · · · · · · · 14-4
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CDI UNIT · · · · · · · · · · 14-6
SIDE STAND IGNITION CUT-OFF SWITCH · · · · · · 14-7

SERVICE INFORMATION

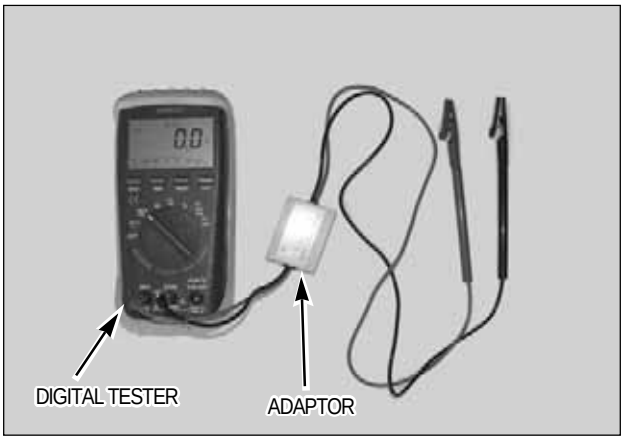
GENERAL SAFETY

- Refer to the malfunction diagnosis when inspecting ignition devices.
- Because the ignition devices have installed electrical addevices, it is impossible to adjust ignition timing.
- Be careful when handling the ignition devices as they can become easily damaged if dropped or bumped. Also, do not disconnect or connect the connectors and couplers when the main swtich is turned ON as excessive electric current can cause damage in the unit. Always perform maintenance work on the ignition devices with the main switch turned OFF.
- Ignition devices can often appear to be malfuctioning when the couplers or connectors are disconnected. Check these connections before working on.
- Use recommended spark plug. Using incorrect spark plug may make the engine run bodly or damage the engine.
- This manual gives explanations on inspections to receive peak voltage. As inspections for coil resistance values are also included, it may be difficult to make a correct determination.
- Conduct inspection on the main switch by referring to the wiring diagram continuity chart. (⇨chapter 16)

TROUBLE SHOOTING

Spark plug does not emit sparks.

UNUSUAL CONDITION		POSSIBLE CAUSES (START FROM 1 AND GO THROUGH LIST IN ORDER)
IGNITION COIL PRIMARY VOLTAGE	Maximum voltage is low.	1. Using a tester with a low internal resistance. 2. Cranking speed is low. - Battery is low or kick power is weak. 3. Influence of tester sampling time. (normal state if measured a number of times and show over the set voltage.) 4. Problem in ignition system wiring (disconnected, damaged). 5. Ignition coil is damaged. 6. Excite coil is damaged (when no problem peak voltage). 7. CDI unit is damaged (when no problems in 1~6 and spark plug does not emit sparks).
	No ,or almost no peak voltage.	1. Adaptor is connected incorrectly. 2. Main switch damaged. 3. CDI unit coupler is connected incorrectly. 4. CDI unit ground wire disconnection. 5. Damage to excite coil (measure peak voltage). 6. Pulse generator is damaged (measure peak voltage). 7. Peak voltage adaptor is damaged. 8. CDI unit is damaged (when no problems in 1~7 and no sparks emitted from spark plug).
	Spark plug peak voltage is normal but spark plug dies not emit sparks.	1. Damage to spark plug or leakage of ignition coil secondary current. 2. Damaged ignition coil.
EXCITE COIL	Peak voltage is low.	1. Using a tester with a low internal resistance. 2. Cranking speed is too low. -Battery is insufficiently charged or kick power is weak. 3. Influence of tester sampling time (normal state if measured a number of time and shows over the set voltage). 4. Excite coil is damaged (when 1~3 is okay).
	No ,or almost no peak voltage.	1. Peak voltage adaptor is damaged. 2. Excite coil is damaged.
PULSE GENERATOR	Maximum voltage is low.	1. Using a tester with a low internal resistance. 2. Cranking speed is low. - Battery is low or kick power is weak. 3. Influence of tester sampling time. (normal state if measured a number of times and show over the set voltage.) 4. Pulse generator is damaged (when 1~3 is okay).
	No ,or almost no maximum voltage.	1. Maximum voltage adaptor is damaged. 2. Pulse generator is damaged.

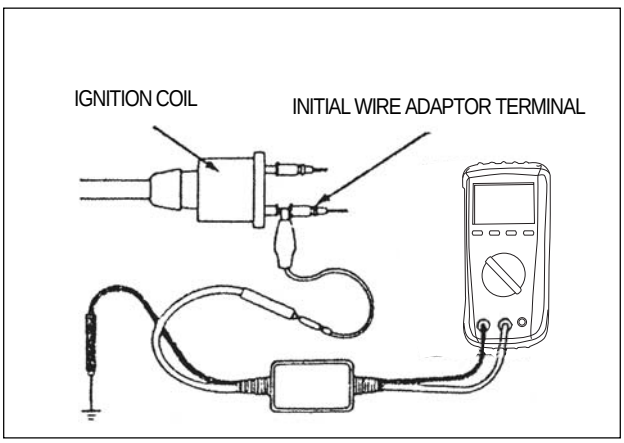


IGNITION SYSTEM INSPECTION (PEAK VOLTAGE MEASUREMENT)

NOTE

· When sparks are not emitted from spark plug, after checking for disconnection in wires and looseness, measure peak voltage gor each wire.

● Connect the peak voltage adaptor to the digital tester.
DAERIM PVA MULTI TESTER



IGNITION COIL PRIMARY VOLTAGE

NOTE

· Make sure each wire is correctly connected to ensure correct measurement.

· Inspect when there is cylinder compression pressure and with the spatk plug cap securely connected to the spark plug.

● Remove the luggage box.(⇨3-3).
● With the ignition coil wire connected, contact the peak voltage adaptor to the initial wire adaptor terminal (black/ yellow) and ground (on vehicle body.). Turn the main switch ON, operate the starter motor, and measure the ignition coil initial side peak voltage.

CONTACT POINTS:BLACK/YELLOW TERMINAL "⊕"-BODY EARTH "⊖"
PEAK VOLTAGE : OVER 120V

CAUTION

· When measuring voltage, do not touch the metal part of the handle rod as there is the danger of receiving an electric shock.

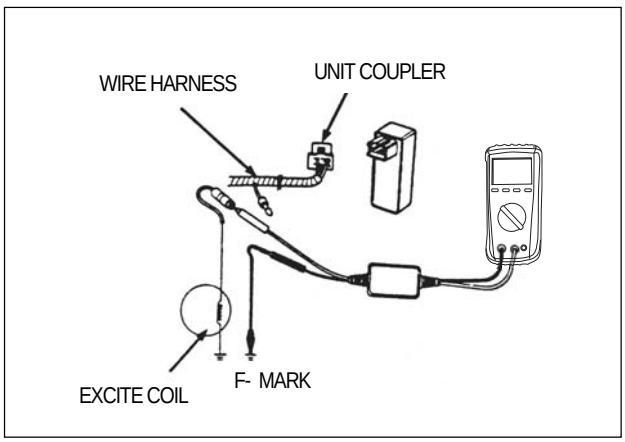
PULSE GENERATOR

CAUTION

· Inspect with the spark plug assembled and while there is compression pressure.

● Remove the CDI unit.(⇨14-7)
● Remove the coupler from the CDI unit and connect the peak voltage adaptor to the pulse generator wire (blue/yellow and green) of harness coupler.
● Operate the starter motor and measure the peak voltage of the pulsw generator coil.

CONTACT POINTS:BLUE/YELLOW TERMINAL "⊕"-BODY EARTH "⊖"
PEAK VOLTAGE : OVER 1.5V



EXCITE COIL

CAUTION

· Assemble the spark plug to the cylinder head, inspect in a state having compression pressure.

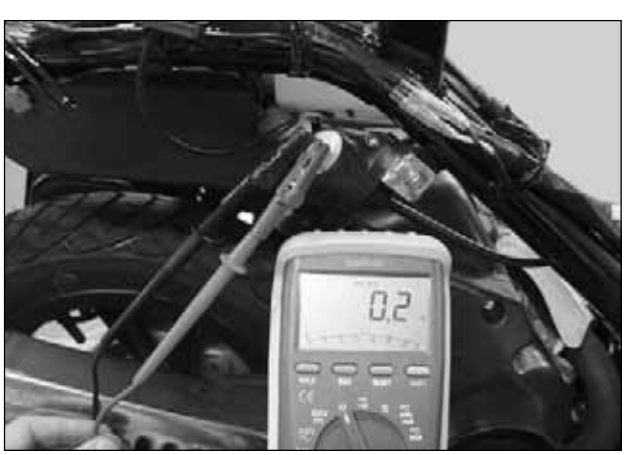
- Remove the luggage box.(⇨3-3).
- Remove the CDI unit.(⇨14-7)
- Remove the coupler from the CDI unit and contact the peak voltage adaptor to the excite coil wire (blue/red and green) of harness coupler.
- Operate the starter motor and measure the excite coil peak voltage.

CONTACT POINTS:BLACK/RED TERMINAL "⊕"-BODY EARTH "⊖"
PEAK VOLTAGE : OVER 120V

CAUTION

· When measuring voltage, do not touch the metal part of the handle rod as there is the danger of receiving an electric shock.

- Perform the following inspections of measured peak voltage on the CDI unit coupler portion isabnormal.
- Disconnect the AC generator cord coupler and connect the adaptor.
- In the same manner as with the unit coupler side, measure peak voltage and compare with the girst peak voltage.
- When the measured value in the unit side is abnormal and normal on the pulse generator side, the problem is either incorrect coupler connection or disconnection of the wire harness.
- When both measurements are abnormal, this indicates a problem with the pulse generator. Refer to the malfunction diagnosis are go through each step.



IGNITION COIL

REMOVAL/INSTALLATION

- Remove the luggage box. (⇨3-3)
- Remove the plug maintenance cover.
- Remove the spark plug cap.
- Loosen the ignition coil.
- Disconnect the ignition coil wire.
- Remove the ignition coil.
- Install in the reverse order of removal.

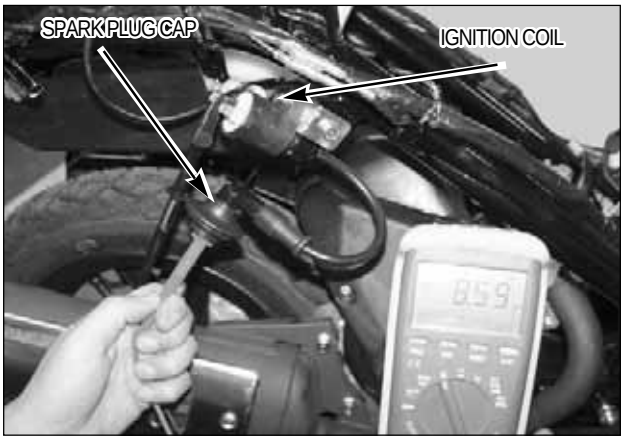
CAUTION

· Arrange the cords in the right place.

INSPECTION(RESISTANCE MEASUREMENT)

- Remove the luggage box. (⇨3-3)
- Measure primary coil resistance between the green and black/yellow terminals.

STANSARD VALUE : 0.1~0.5 Ω (20℃)



● Measure the secondary coil resistance between the plug cap and green wire termimals.

RESISTANCE VALUE
(SPARK PLUG CAP CONNECTION) : 6.5~9.5 KΩ (20℃)

● The coil which the resistance value indicate "∞" (disconnection) remove the plugcap, and measure the resistance of secondary coil.
● Measure the resistance between the high tension code and green code terminals.

RESISTANCE VALUE : 2.6~1.25 KΩ (20℃)

EXCITE COIL INSPECTION

NOTE

· Assemble the spark plug to the cylinder head, inspect in a state having compression pressure.

● Remove the luggage box. (⇨3-3)
● Remove the connection of the AC generator wire connector (black/red), measure the resistance between the terminal of AC generator and body earth.

STANDARD VALUE : 500 Ω ±20% (20℃)

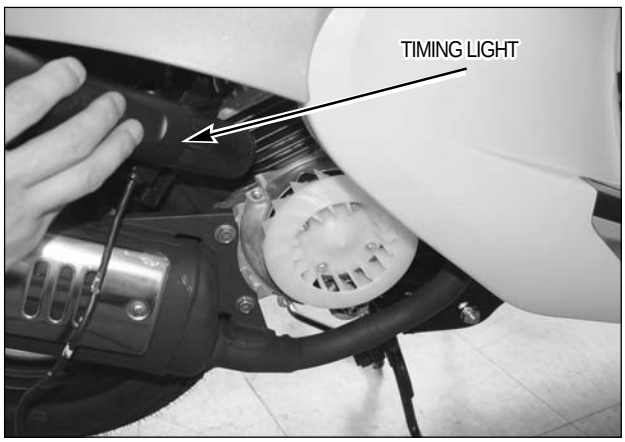
PULSE GENERATOR INSPECTION

NOTE

· The inspection of pulse generator is pergormed on a state assembling to the engine.

● Remove the luggage box. (⇨3-3)
● Remove the connection of the AC generator 6P coupler, and mesure the resistance between the blue/yellow of starter and green code.

STANDARD VALUE : 100 Ω ±20% (20℃)



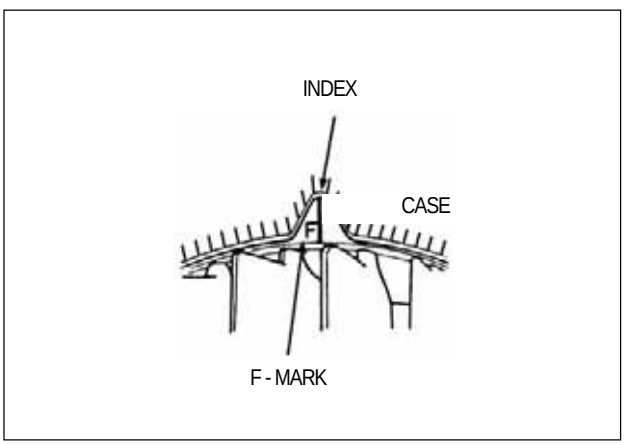
IGNITION TIMING INSPECTION

NOTE

- As a CDI device is used in this vehicle, there is no need for adjusting ignition timing. If ignition timing problems occur, inspect the CDI unit and the AC generator and replace if any malfunctions are found in the devices.
- Ignition timing inspection well read the instruction manual of timing light or revolution-indicator, and handle it exactly.

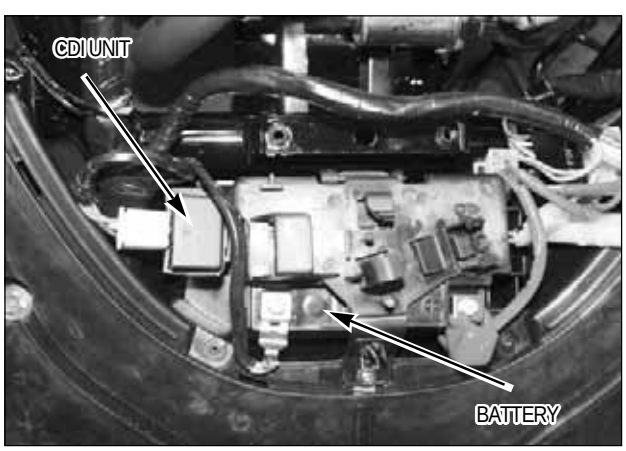
- Warm up the engone.
- Remove the fan cover.
- Connect timing light to the high-tension cord.
- When engine rpms are at 1,800, ignition timing is correct if the "F"mark and crank case index mark are aligned.

IGNITION TIMING : 17 DEGREES ± 2BTDC/1,800 RPMS



NOTE

- Index mark must face the spark plug.



CDI UNIT

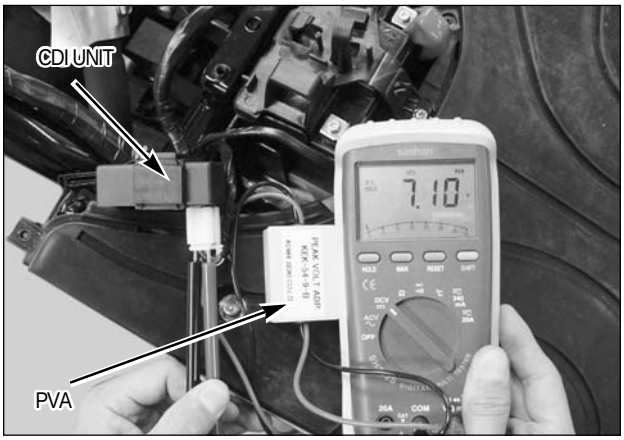
REMOVAL/INSTALLATION

- Remove the maintenance lid.
- Remove the luggage box. (⇨3-3)
- Disconnect the coupler from the CDI unit and remove CDI unit.
- Install in the reverse order of removal.

CIRCUIT INSPECTION

- Remove the coupler from the CDI unit, and check the ignition system circuits from the wiring coupler side.

INSPECTION ITEM	CHECK POINT	STANDARD VALUE
PULSE GENERATOR	BLUE/YELLOW AND GREEN	50~200 Ω(20℃)
IGNITION COIL		
-PRIMARY COIL	BLACK/YELLOW AND GREEN	0.1~0.5 Ω(20℃)
-SECONDARY COIL	GREEN AND GIGHT-TENSION CORD	
	(ATTACH THE PLUG CAP)	6.3~10.3K Ω(20℃)
	(DETACH THE PLUG-CAP)	3.3±0.5K Ω(20℃)

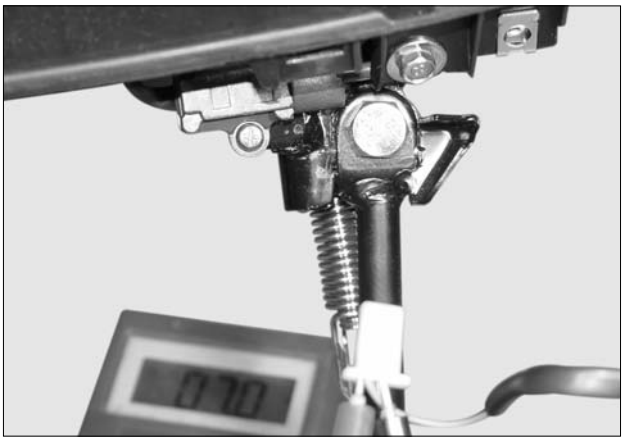


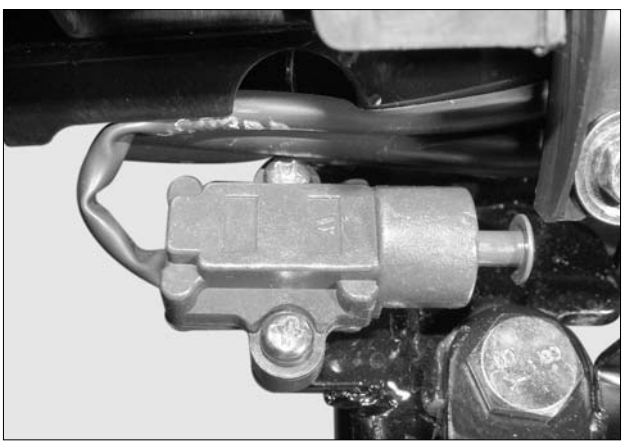
TESTING BY CDI TESTER

- Check the CDI unit spark performance by using a CDI tester.

NOTE

· Read tester manual carefully prior to using the tester





SIDE STAND IGNITION CUT-OFF SWITCH

INSPECTION

- Remove the plug maintenance cover/center cover. (⇨3-3)
- Remove the coupler of the side stand switch.
- Check for continuity between theminal as shown below:

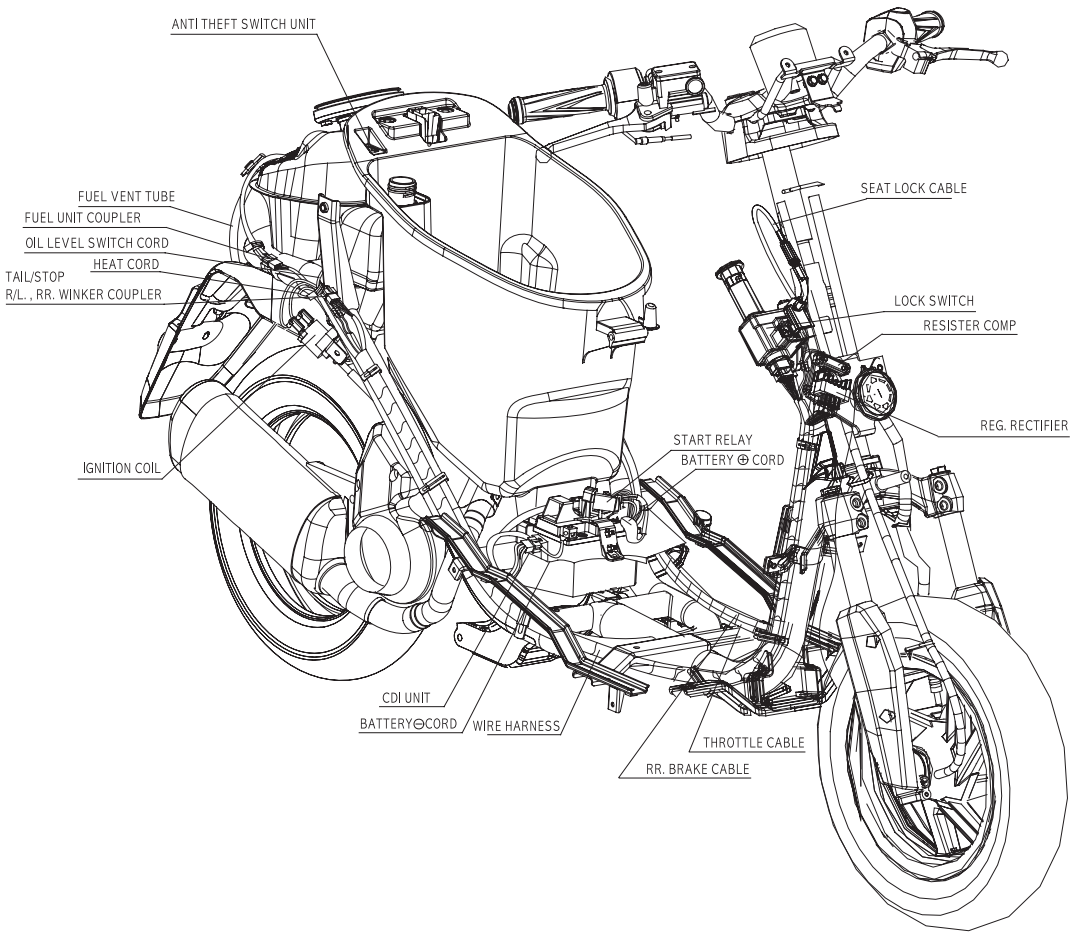
ITEM	TERMINAL	SPECIFICATION
ON (Side stand is Retracted)	BLACK/WHITE AND GREEN	NO CONTINUITY
OFF (Side stand is Lowered)	BLACK/WHITE AND GREEN	CONTINUITY

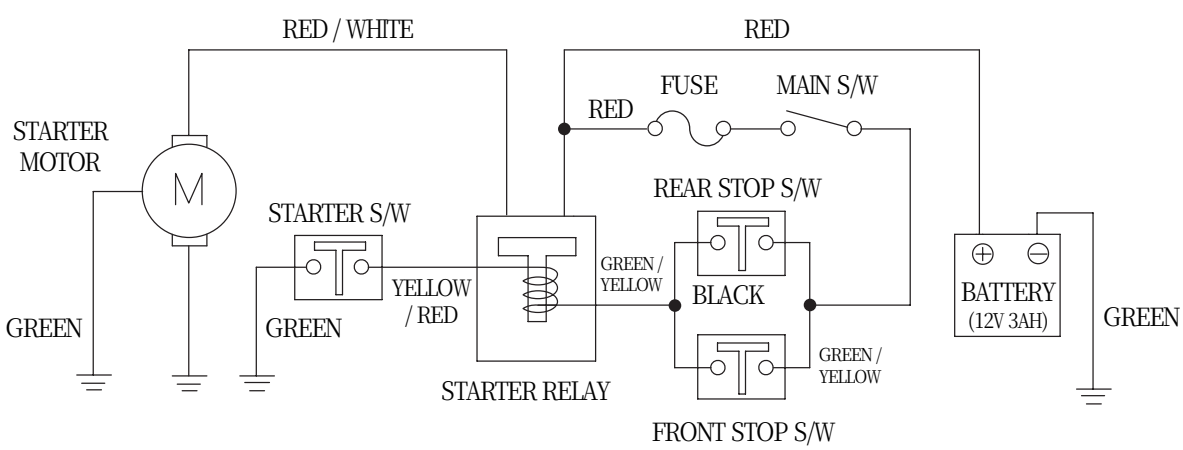
REMOVAL

- Remove the floor side cover. (⇨3-4)
- Remove the plug maintenance cover/ center cover. (⇨3-3)
- Remove the side stand switch mounting 2 bolts.
- Release the wire clamps and remove the side stand switch.

INSTALLATION

- Install on the reverse order of removal.


ANTI THEFT SWITCH UNIT
FUEL VENT TUBE
FUEL UNIT COUPLER
OIL LEVEL SWITCH CORD
HEAT CORD
TAIL/STOP
R/L., RR. WINKER COUPLER
SEAT LOCK CABLE
LOCK SWITCH
RESISTER COMP
REG. RECTIFIER
START RELAY
BATTERY ⊕ CORD
IGNITION COIL
CDI UNIT
BATTERY⊖CORD
WIRE HARNESS
THROTTLE CABLE
RR. BRAKE CABLE


RED / WHITE
RED
FUSE
MAIN S/W
RED
STARTER
MOTOR
M
REAR STOP S/W
STARTER S/W
GREEN /
YELLOW
BLACK
BATTERY
(12V 3AH)
GREEN
YELLOW
/ RED
GREEN
GREEN
GREEN /
YELLOW
STARTER RELAY
FRONT STOP S/W

15. STARTING SYSTEM

SERVICE INFORMATION · · · · 15-1
TROUBLE SHOOTING · · · · 15-2
STARTER MOTOR · · · · · · 15-3
STARTER RELAY INSPECTION · 15-6
STARTER PINION GEAR INSPECTION · 15-6

SERVICE INFORMATION

GENERAL SAFETY

WARNING

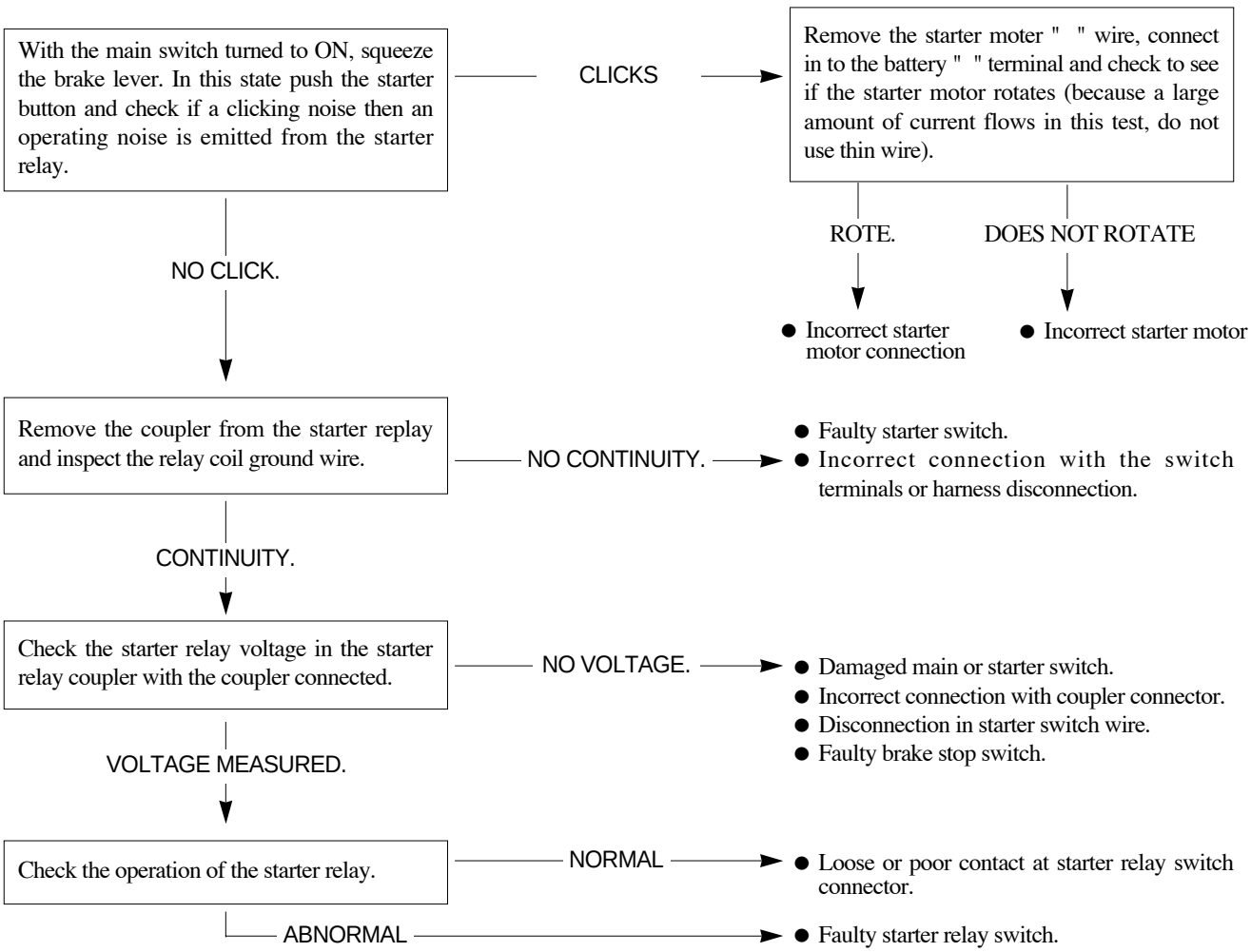
· When performing maintenance on the starter motor and related parts, turn the main switch to OFF. There is the danger of the starter motor unexpectedly operating if the main switch is not turned to OFF.

- First check connection with battery and battery charge level before begining maintenance on the starter motor.
- It is possible for the starter motor coil to become dmged if the starter is operted when the engine does not turn over.

TROUBLE SHOOTING

Starter motor does not rotate (No response from starter motor).

- Check to see if the fuse is burned out.
- Check to turn on the lamp of stop switch.


With the main switch turned to ON, squeeze the brake lever. In this state push the starter button and check if a clicking noise then an operating noise is emitted from the starter relay.
CLICKS
Remove the starter moter " " wire, connect in to the battery " " terminal and check to see if the starter motor rotates (because a large amount of current flows in this test, do not use thin wire).
ROTE.
DOES NOT ROTATE
● Incorrect starter motor connection
● Incorrect starter motor
NO CLICK.
Remove the coupler from the starter replay and inspect the relay coil ground wire.
NO CONTINUITY.
● Faulty starter switch.
● Incorrect connection with the switch terminals or harness disconnection.
CONTINUITY.
Check the starter relay voltage in the starter relay coupler with the coupler connected.
NO VOLTAGE.
● Damaged main or starter switch.
● Incorrect connection with coupler connector.
● Disconnection in starter switch wire.
● Faulty brake stop switch.
VOLTAGE MEASURED.
Check the operation of the starter relay.
NORMAL
● Loose or poor contact at starter relay switch connector.
ABNORMAL
● Faulty starter relay switch.

Starter motor rotates but crank shaft does't

- Incorrect starting clutch.
- Incorrect starter gear.
- Starting clutch slip.

Starter motor operates in free-wheel

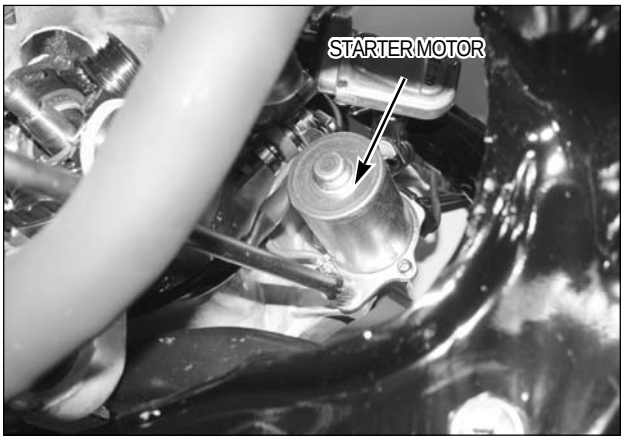
- Internal fault of starter motor.
- Driven gear slips.

Weak rotational power in starter motor

- Battery is insufficiently charged.
- Incorrect connection of battery terminal cord.
- Damaged starter motor.
- Ground wire is connected incorrectly
- Brush is damaged or worn.

Starter motor and crank shaft rotate but dose not turn engine over.

- Incorrect starting system.
- Faulty engine.



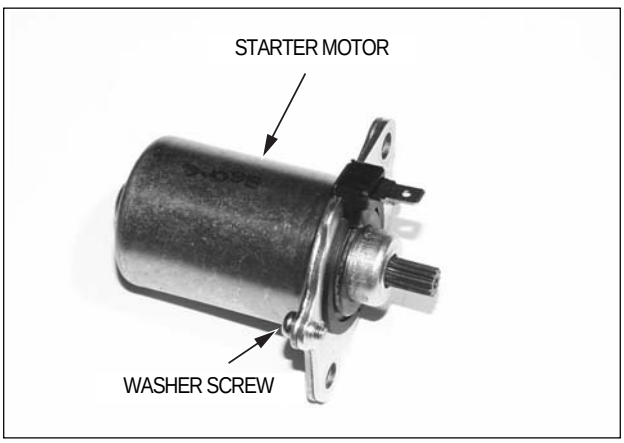
STARTER MOTOR

REMOVAL/INSTALLATION

- Remove the luggage box. (⇨3-3).
- Remove the body cover. (⇨3-3)
- Disconnect the starter wire connector, remove the wire from the wire fixing clamp.
- Loosen the 2 starter motor fixing bolts.
- Remove the starter motor.
- Install in the reverse order or removal.

NOTE

· Accurately tighten the earth wire.
· Turn off the main switch prior to servicing the starter motor. If power is connected, the starter motor may be activated and damaged.



DISASSEMBLY

- Remove the starter motor screws and remove the motor cover.

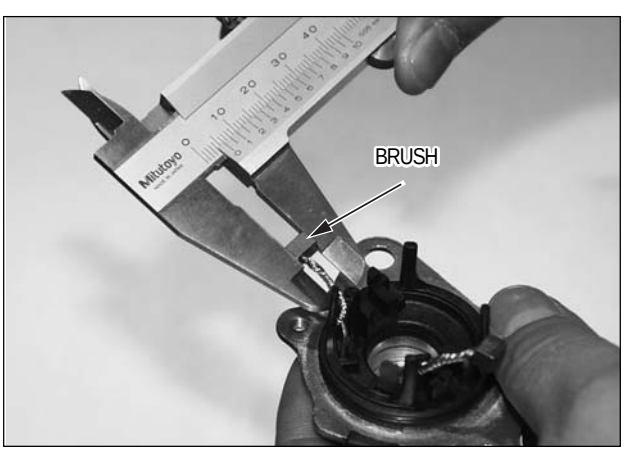
NOTE

· Record the order so the parts can be installed correctly later.

INSPECTION

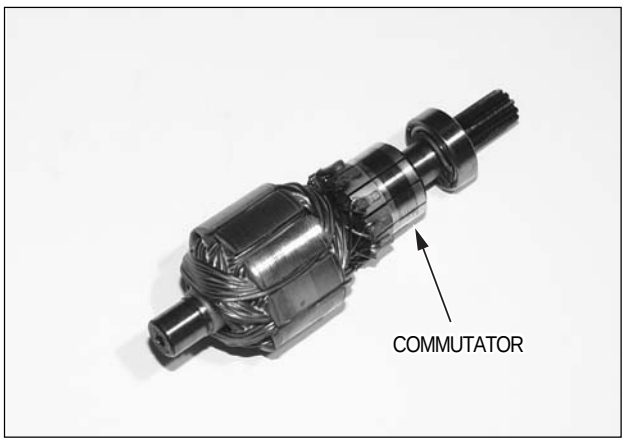
- Check for continuity of the starter motor case.
  -Between cord terminal"⊕" and bracket"⊖": normal if no continuity.
  -Between cord terminal and brush : normal if there is continuity.

- If abnormal, replace with a new one.

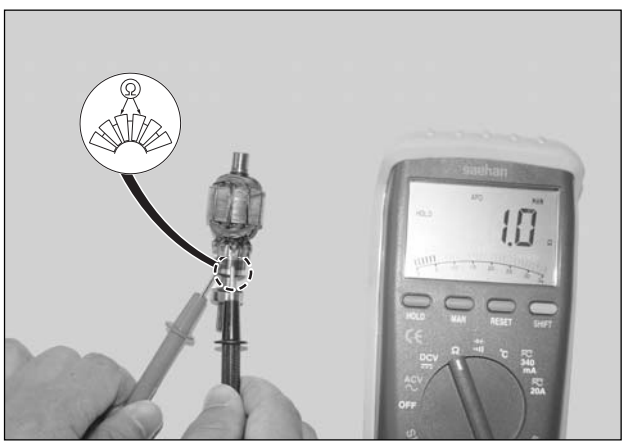


- Measure the brush length. Replace the brush if it is worn beyond the service limit.

SERVICE LIMIT : 3 mm

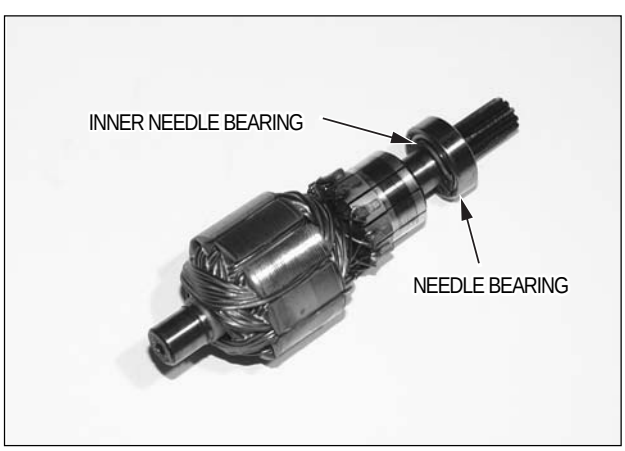


- Check the commutator for :
  -Damage or abnormal wear. → Replace with a new one.
  -Discoloration of the commutator bar. → Replace with a new one.
  -Metallic debris between commutator bars.→ Clean it off.

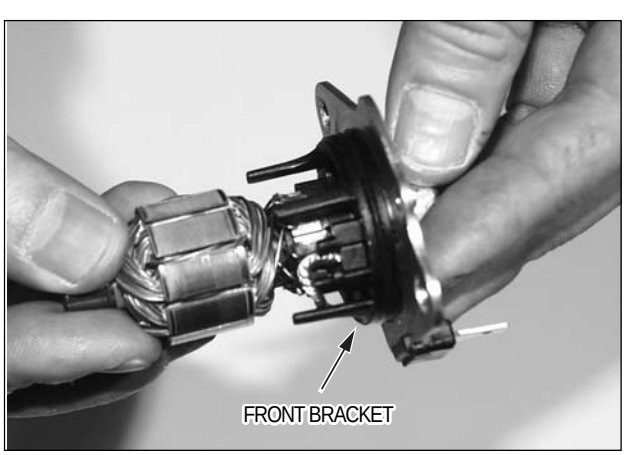


- Check for continuity between pairs of commutator bars.
- Make a continuity check between individual commutator bars and the armature shaft.

- There should be no continuity.



- Check the bearings:
  -Do not rotate smoothly. → Replace with a new one.
  -Damage oil seal. → Replace with a new one.

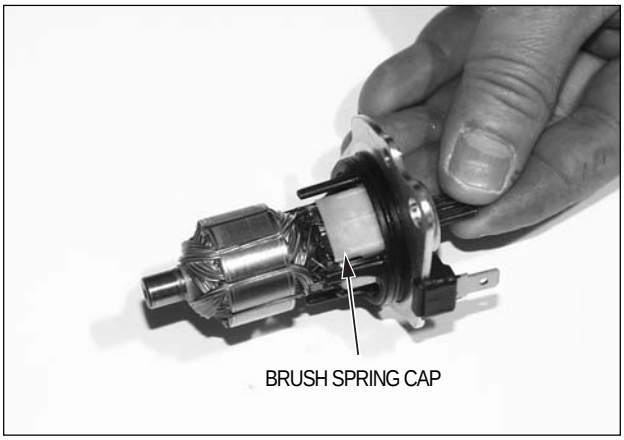


STARTER MOTOR ASSEMBLY

- Carefully insert the armature shaft into the front bracket.
- Align the front bracket notch with the brush.

CAUTION

· The sliding surfaces of the brushes can be damaged if they are not installed properly.

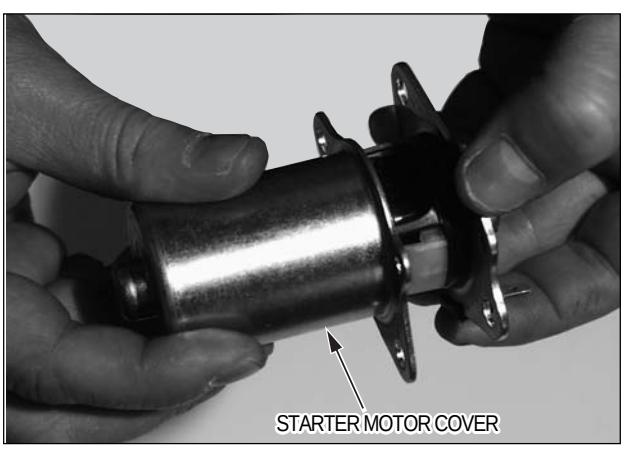


● Insert the brush spring into the brush holder and install the front bracket.

NOTE

· Insert the brush spring with care so that it does not lean in the holder.

● Apply grease to both ends of the armature shaft.



● Install the starter motor cover.

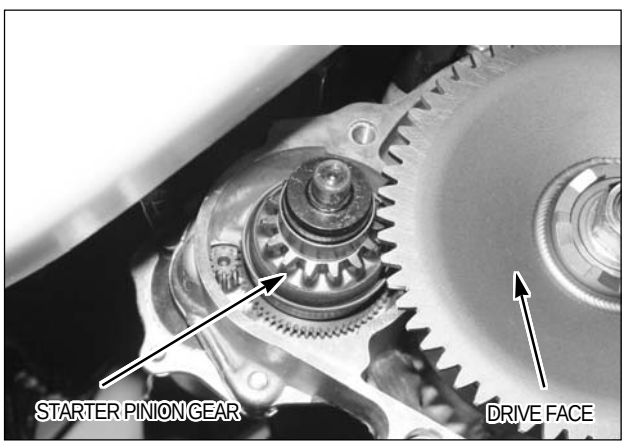
NOTE

· The coil my be damaged if the maganet pulls the armature against the case.

● Align the front bracket with the cover.
● Tighten the washer screw.

STARTER RELAY INSPECTION

- Remove the maintenance lid.
- When battery voltage is applied between the starter relay green/yellow wire and yellow/red terminals, there should be continuity between the red and red/white terminals. The terminals are distinguished by the corresponding wire color of wire harness connector.

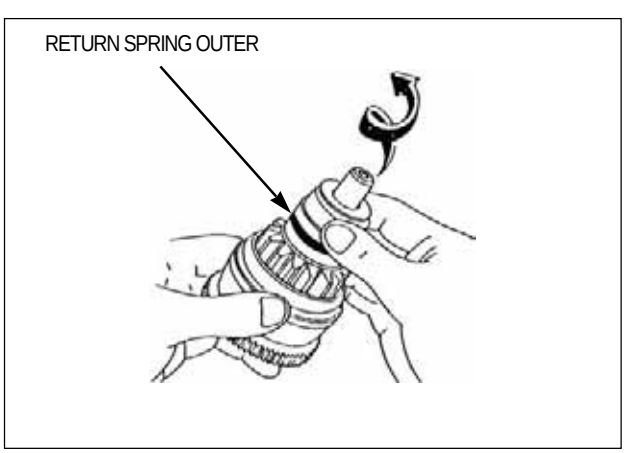


STARTER PINION GEAR INSPECTION

- Remove the LH.side cover. (⇨7-2)
- Remove the drive face.(⇨7-6)
- Remove the starter pinion gear.
- Install in the reverse order of removal.

INSPECTION

- Wear or damage to the pinion, reduction gears. → Replace with a new one.
- Worn journals. → Replace with a new one.



- Check if the pinion gear moves smoothly along the axis
- Pinion gear does not move smoothly. → Replace with a new one.

MEMO

MEMO

16. LIGHTS/METER/SWITCHES

SERVICE INFORMATION	16-1	HANDLE SWITCH ISPECTION	16-4
TROUBLE SHOOTING	16-1	FRONT STOP SWITCH INSPECTION	16-4
FUEL UNIT	16-2	BULBS REPLACEMENT	16-5
OIL LEVEL SWITCH	16-3	METER REPLACEMENT	16-6
MAIN SWITCH	16-3	HORN INSPECTION	16-7

SERVICE INFORMATION

GENERAL SAFETY

- Refer to tester owner's manuals when performing continuity inspections.
- Refer to wiring diagram (chapter17) for switch continuity.
- After inspecting and/or per performing maintence work make sure the wires and cables are properly placed and connected.

TROUBLE SHOOTING

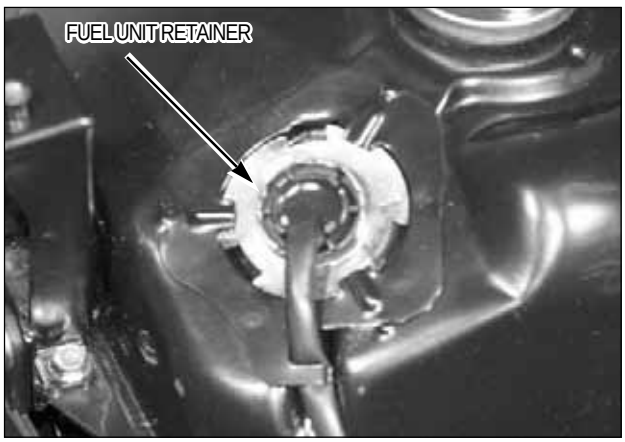
Fuel meter indicator malfunctioning
- Coupler separated.
- Harness disconnected.
- Float operation malfuction.
- Fuel unit damaged.
- Meter damaged.

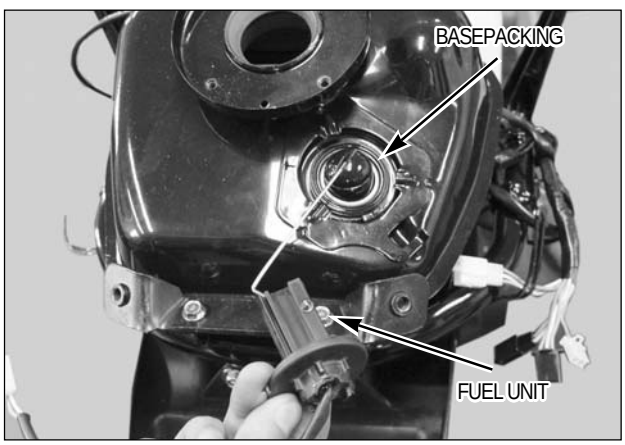
Fuel meter needle unstable
- Coupler loose.
- Fuel unit damaged.
- Meter damaged.

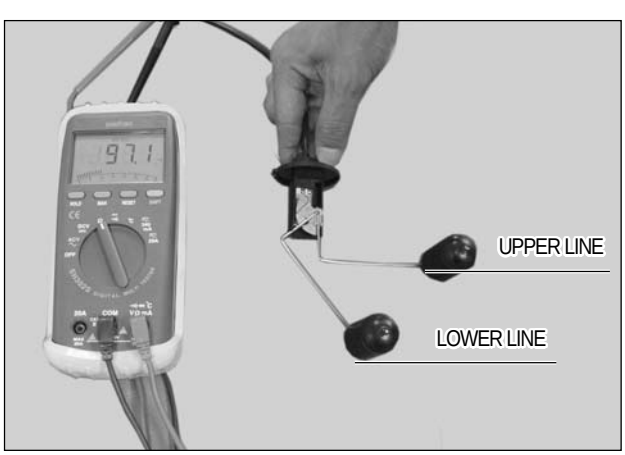
Headlight hi-lo not operating
- Bulb malfunction.
- Dimmer switch damaged.

Oil indicator light not operating (when there is oil)
- Burned out fuse.
- Battery insufficently chargde.
- Main swtich damaged.
- Meter damaged.
- Oil level switch damaged.
- Loose connector.
- Harness disconnection.

Oil indicator does not turn off (when oil is out)
- Oil level switch damaged.
- Green/red wire joined.







FUEL UNIT

REMOVAL

- Remove the luggage box. (⇨3-3)
- Remove the fuel unit wire from the wire harness.
- Turn the fuel unit fixing unit set cap comp to the left, and remove it.
- Remove the fuel nit from the fuel tank.

NOTE

- Be careful of prevention the fuel unit wire from damaging.
- When disassembling, be careful of prevention the float arm from damaging.

- Remove the base packing.

NOTE

- Check for damage.

INSTALLATION

- Install the base packing to the fuel tank.
- Install the fuel unit.

NOTE

- Install it aligning the 凸park of the fuel unit with the ollp park of fuel tank.
- Check the fuel leakage.

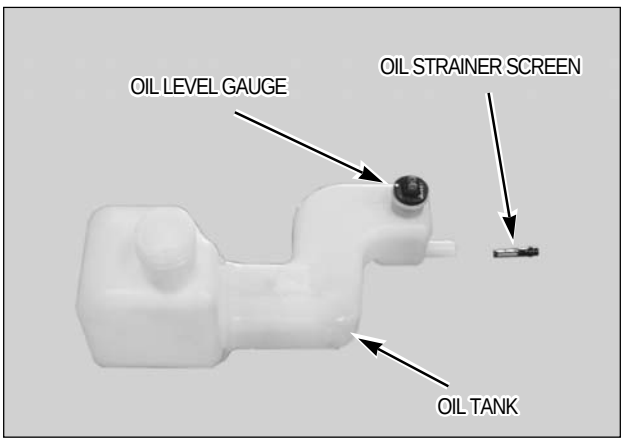
INSPECTION

- Move the float upward and downward, and measure the resistance between the terminals.

(UNIT : Ω)

WIRE TERMINAL	YELLOW/WHITE AND GREEN
FUEL FULL (UPPER LINE)	10
RESERVE	71
FUEL LOW (LOWER LINE)	90

- When the measured value differs greatly from the standard value, replace the fuel unit.



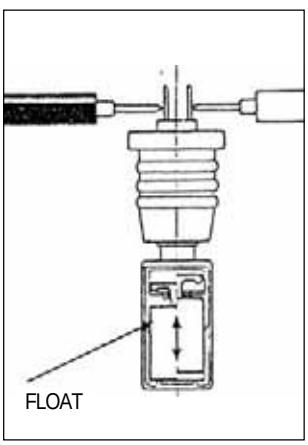
OIL LEVEL SWITCH

REMOVAL/INSTALLATION

- Remove the luggage box. (⇨3-3)
- Remove the body cover.
- Loosen the bolt joined with the fuel tank.
- Remove the wire of oil level switch.
- Remove the oil level switch from the oil tank.
- Install in the reverse order of removal.

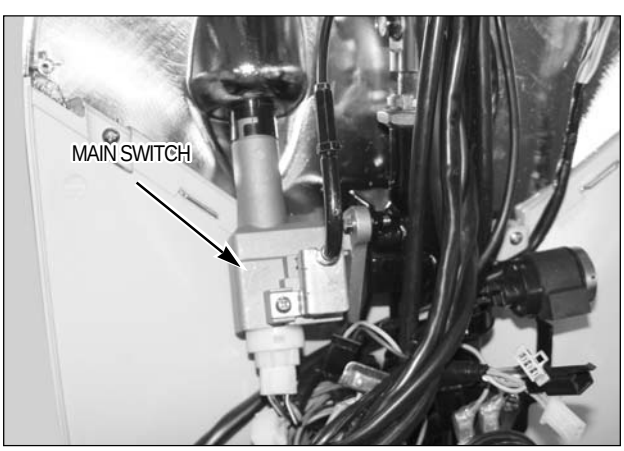
NOTE

· Disassemble after adjusting the oil level.



INSPECTION

- Move the float to farthesting extreme up and down and check the continuity of the terminals.
- It's normal state if there is no continuity when the float is up, but continuity when it is down.



MAIN SWITCH

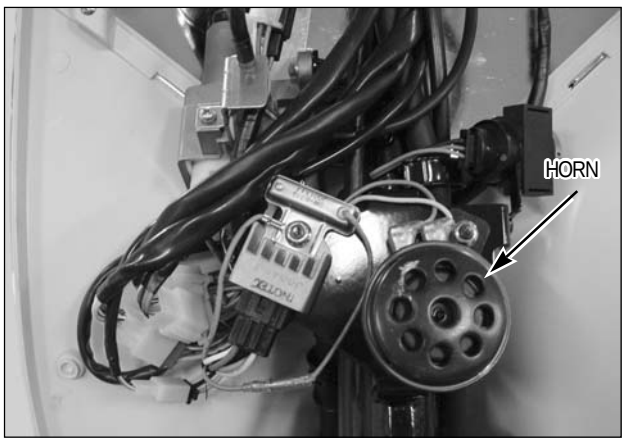
REMOVAL/INSTALLATION

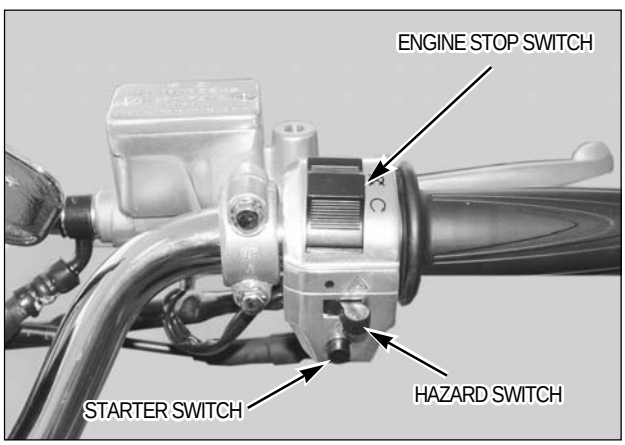
- Remove the front cover. (⇨3-5)
- Disconnect the main switch coupler.

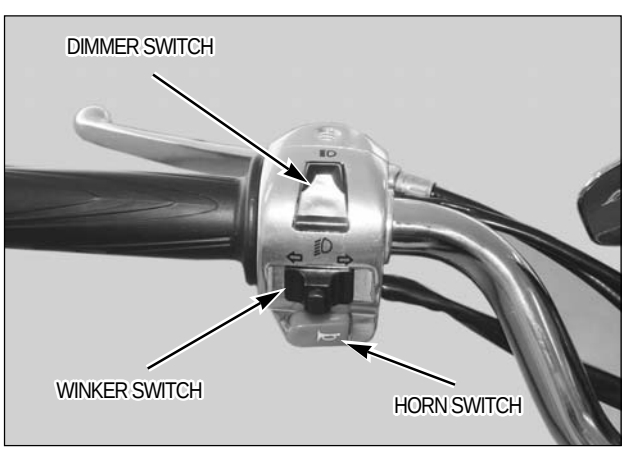
INSPECTION

- Inspect continuity of each terminal.

TERMINAL	IG	E	BA1	BA2
ON			○———	———○
OFF	○———	———○		
LOCK	○———	———○		
COLOR	BLACK/WHITE	GREEN	RED	BLACK







HANDLE SWITCH INSPECTION

- Remove the front handle cover.
- Remove the handle switch coupler, connector, and inspect continuity of each terminal.
- If abnormal, inspect the switch.

LIGHTING SWITCH

	HL	C1	TL	RE
OFF		○		○
(N)		○	○	
PO		○	○	
(N)	○	○	○	
H	○	○	○	
COLOR	BROWN/ WHITE	BROWN	YELLOW	BLACK

STARTER SWITCH

	ST	E
FREE		
PUSH	○	○
COLOR	YELLOW/RED	GREEN

DIMMER SWITCH

	HI	LO	HL
LO		○	○
N	○	○	○
HI	○		○
COLOR	BROWN	WHITE	BLUE

WINKER SWITCH

	R	L	WR
L		○	○
N			
R	○		○
COLOR	SKY BLUE	ORANGEG	GRAY

HORN SWITCH

	HO	BATO
FREE		
PUSH	○	○
COLOR	LIGHT GREEN	BLACK

HAZARD SWITCH

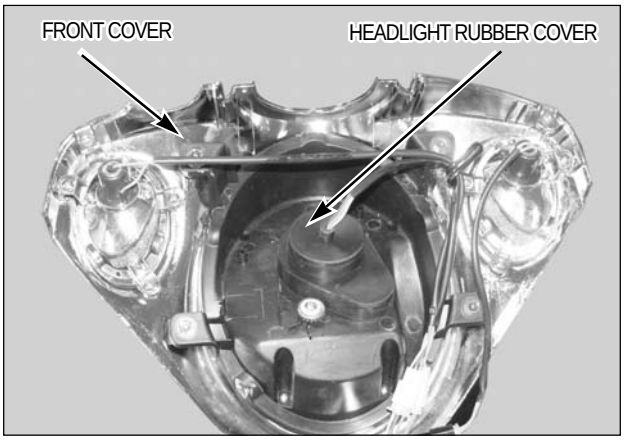
	W	R	L
OFF			
HAZARD	○		○
COLOR	GRAY	SKY BLUE	ORANGE

FRONT STOP SWITCH INSPECTION

- Remove the black wire and green/yellow wire terminals inside the speedometer assembly, and check the following.

  -When the brake level is pulled-continuity.

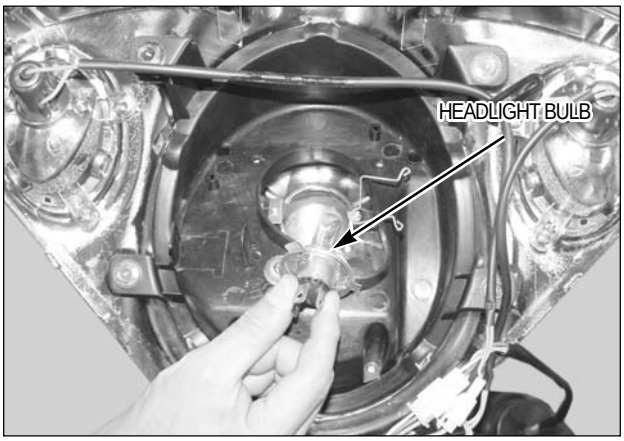
  -When the brake levwl is released-no continuity.



BULBS REPLACEMENT

HEADLIGHT BULB

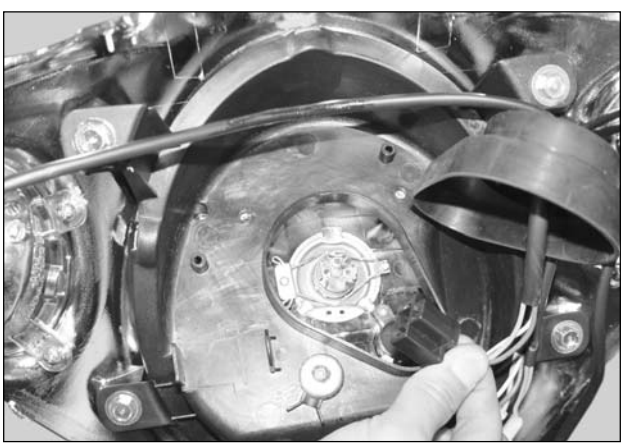
- Remove the front cover. (⇨3-5)
- Remove the headlight rubber cover.
- Replace with new bulb.



NOTE

- Before replacing the bulb, be sure to check the swtiches for loose connection of the connectors.

- Install in the reverse order of removal.

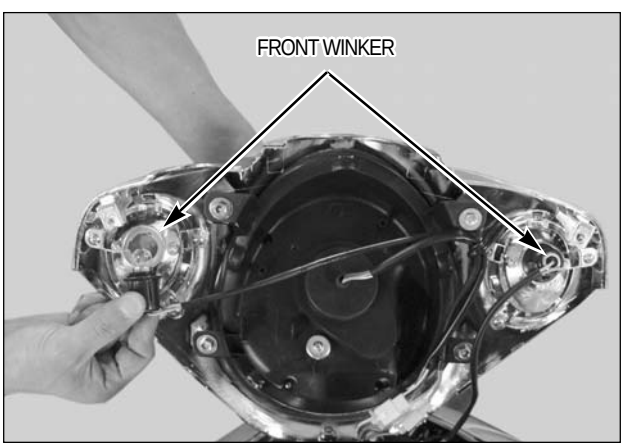


WARNING

- Headlight bulbs become very hot while the headlight is NO, and remain hot for a while after they are turned OFF.
- Be sure to turn the ignition switch OFF and let the bulb cool down before replacement.

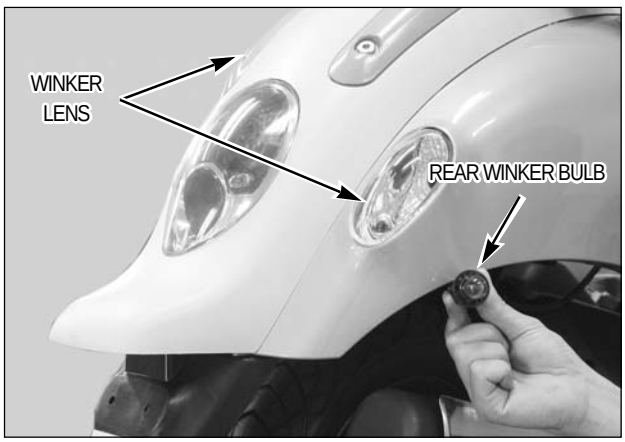
CAUTION

- If you touch the bulb with your bare hands, clean it with a cloth moistened with denatured alcohol to prevent early bulb failuer.
- Be sure to install the dust cover after replacing the bulb.



FRONT WINKER BULB

- Remove the front cover. (⇨3-5)
- Remove the bulb from the socket, replace with new bulb.
- Install in the reverse order of removal.

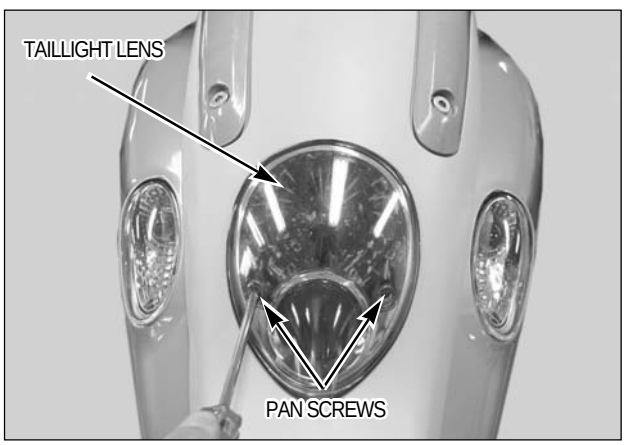


REAR WINKER BULB REPLACEMENT

- Press the winker lens groove and open the winker lens using plain screwdriver.
- Remove the bulb from the socket, replace with new bulb.
- Install in the reverse order of removal.

NOTE

- Pay attention not to damge the lens.
- Do not apply excessive force when removing the lens.



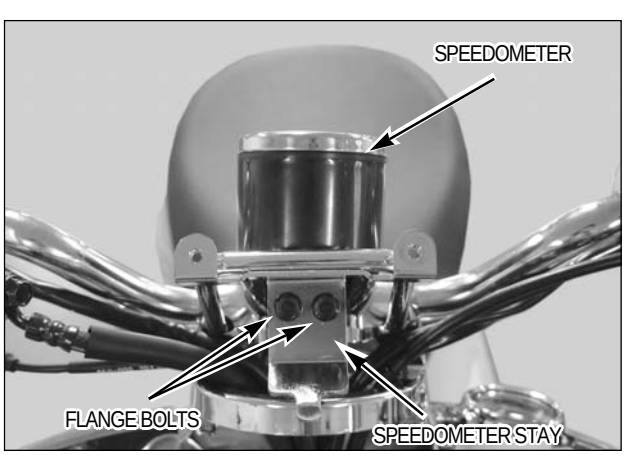
TAILLIGHT BULB REPLACEMENT

- Loosen the 2 pan screws, remove the tail light lens.

NOTE

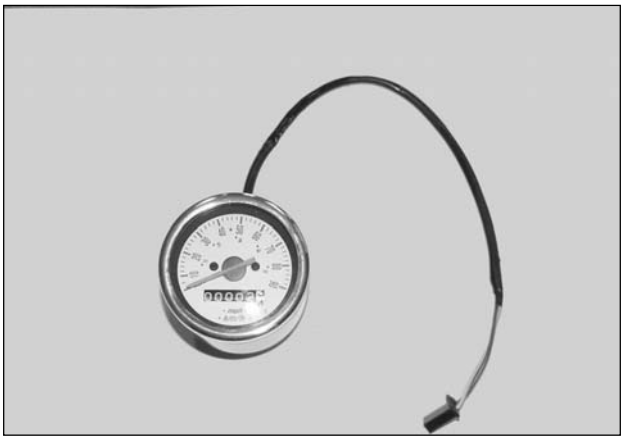
- Pay attention not to damge the tail light lens when removing it.

- Replace the tail stop light bulb with the new one.

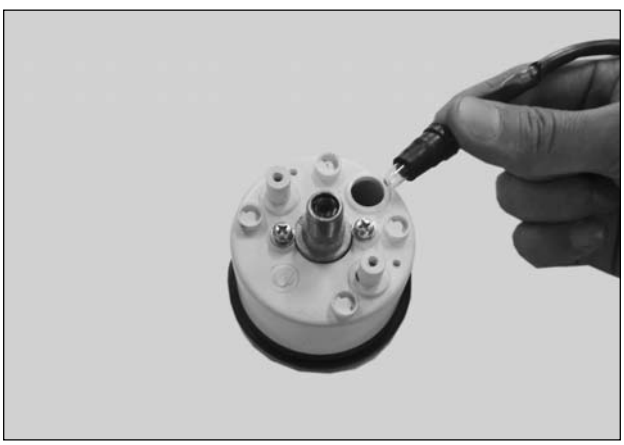


METER REPLACEMENT

- Remove the speedometer cable from the meter.
- Remove the speedometer coupler connected to the wire harness.
- Loosen the flange bolts securing the speedometer stay.



- Remove the speedometer assembly.
- Install in the reverse order of removal.

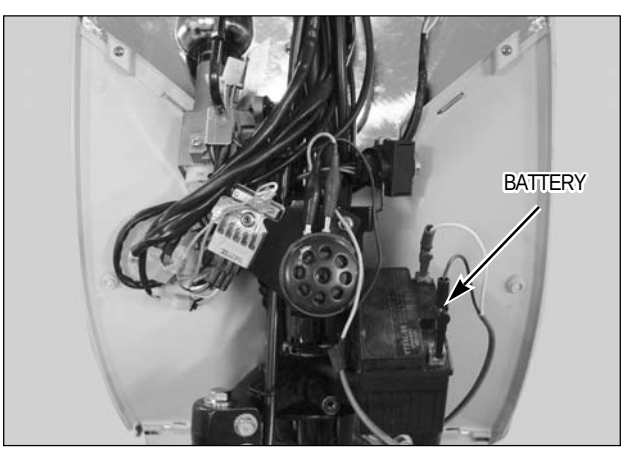


METER BULB REPLACEMENT

- Remove the front handle cover. (⇨3-6)
- Remove the bulb socket, replace with new bulb.

NOTE

- Check the each switch for proper operation.
- The wire and cable must be connected accurately.



HORN INSPECTION

- Remove the front cover. (⇨3-5)
- Remove the horn wiring, and connect a fully charged 12V battery. Check the sound quality for any abnormalities.

LICENCE LAMP

- Loosen 2 screws.
- Remove the lamp cover.
- Replace the lamp(12V5W)
- Install in the reverse order of removal.

MEMO

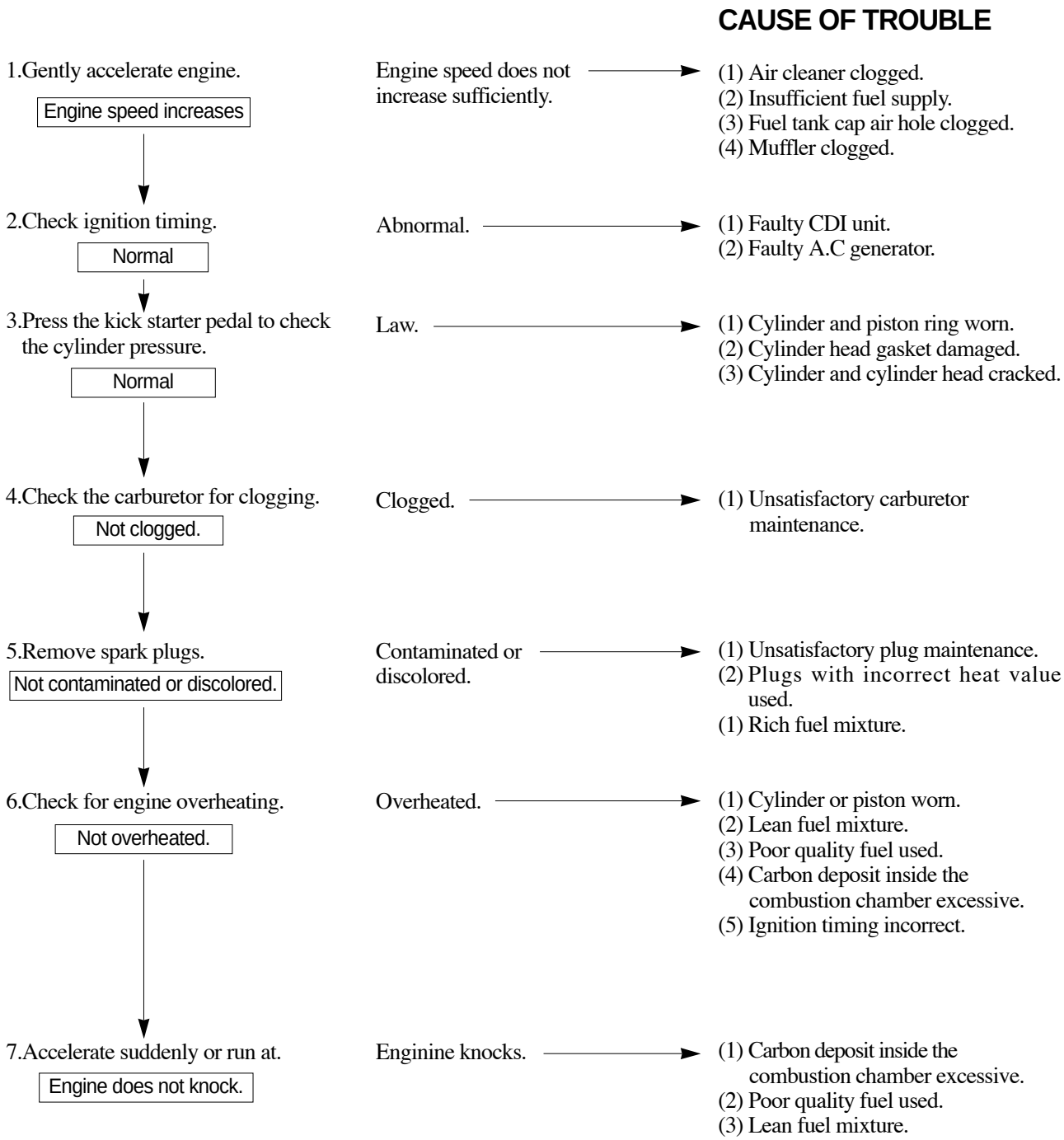
17. TROUBLESHOOTING

ENGINE DOES NOT START OR HARD TO START 17-1
ENGINE OUTPUT INSUFFICIENT 17-2
POOR PERFORMANCE AT LOW SPEED AND IDLING 17-3
POOR PERFORMANCE AT HIGH SPEED 17-3
UNSATISFACTORY OPERATION 17-4
FUEL GAUGE 17-6
STARTER MOTOR 17-7

ENGINE DOES NOT START OR HARD TO START

		CAUSE OF TROUBLE
1.Open the drain screw, and check fuel flow to the carburetor. Fuel is supplied	Fuel not supplied to the carburetor. →	(1) Fuel tank empty. (2) Fuel tube up to the fuel tank clogged, or the vacuum tube or fuel tube up to the inlet pipe clogged. (3) Float valve clogged. (4) Fuel tank cap air hole clogged. (5) Fuel supply pipe frozen. (6) Fuel strainer clogged.
2.Check the spark plug. Good spark	Weak or no spark. →	(1) Faulty spark plug. (2) Contaminated spark plug. (3) Faulty CDI unit. (4) Faulty A.C. generator. (5) Disconnected or shorted high tension cord. (6) Disconnected or shorted ignition coil wire. (7) Faulty main switch.
3.Test cylinder pressure. Compression normal	Low cylinder pressure. →	(1) Piston ring size. (2) Cylinder and piston ring won. (3) Cylinder and cylinder head cracked. (4) Crank case air leaks. (5) Cylinder head gasket damaged.
4.Start the engine in the following procedure. Engine won't start.	Engine starts but stops immediately. →	(1) Manifold air leaks. (2) Inadequate ignition.
5.Remove spark plug. Dry plugs	Plug wet. →	(1) Carburetor flooded. (2) Faulty control box. (3) Throttle valve excessively opened.

ENGINE OUTPUT INSUFFICIENT


CAUSE OF TROUBLE
1.Gently accelerate engine.
Engine speed increases
Engine speed does not increase sufficiently.
(1) Air cleaner clogged.
(2) Insufficient fuel supply.
(3) Fuel tank cap air hole clogged.
(4) Muffler clogged.
2.Check ignition timing.
Normal
Abnormal.
(1) Faulty CDI unit.
(2) Faulty A.C generator.
3.Press the kick starter pedal to check the cylinder pressure.
Normal
Law.
(1) Cylinder and piston ring worn.
(2) Cylinder head gasket damaged.
(3) Cylinder and cylinder head cracked.
4.Check the carburetor for clogging.
Not clogged.
Clogged.
(1) Unsatisfactory carburetor maintenance.
5.Remove spark plugs.
Not contaminated or discolored.
Contaminated or discolored.
(1) Unsatisfactory plug maintenance.
(2) Plugs with incorrect heat value used.
(1) Rich fuel mixture.
6.Check for engine overheating.
Not overheated.
Overheated.
(1) Cylinder or piston worn.
(2) Lean fuel mixture.
(3) Poor quality fuel used.
(4) Carbon deposit inside the combustion chamber excessive.
(5) Ignition timing incorrect.
7.Accelerate suddenly or run at.
Engine does not knock.
Enginine knocks.
(1) Carbon deposit inside the combustion chamber excessive.
(2) Poor quality fuel used.
(3) Lean fuel mixture.

POOR PERFORMANCE AT LOW SPEED AND IDLING

		CAUSE OF TROUBLE
1.Check the ignition timing. Normal	Abnormal →	(1) Faulty CDI unit.
2.Check the carburetor air screw. Correct	Incorrect →	(1) Excessive fuel mixture. (Loosen screw to correct adjustment level.) (2) Lean fuel mixture. (Tighten screw to correct adjustment level.)
3.Check the area around the manifold for air leakage. No leak.	Leaking →	(1) Faulty insulator packing. (2) Loose carburetor. (3) Faulty inlet pipe packing. (4) Faulty insulator O-ring.
4.Check spark. Sparks normal.	Weak or intermittent speaks. →	(1) Carbon deposited on spark plugs or spark plugs contaminated. (2) Faulty CDI unit. (3) Faulty ignition coil. (4) Faulty A.C generator. (5) Faulty main switch.

POOR PERFORMANCE AT HIGH SPEED

		CAUSE OF TROUBLE
1.Check the ignition timing. Correct	Incorrect →	(1) Faulty CDI unit. (2) Faulty A.C generator.
2.Remove the fuel tube from the fuel valve. Fuel flows.	Insufficient fuel supply. →	(1) Fuel tank empty. (2) Fuel tube or fuel filter clogged. (3) Fuel tank cap air hole clogged.
3.Remove the carburetor and check for clogged jet. Not clogged	Clogged. →	(1) Clean.

UNSATISFACTORY OPERATIION

CLUTCH DRIVE/DRIVEN PULLEY	CAUSE OF TROUBLE
1.Engine start but motorcycle does not move.	(1) Drive belt worn or slips. (2) Ramp plate samaged. (3) Drive face spring damaged. (4) Cluth lining came off. (5) Driven pulley shaft spline damaged. (6) Faulty transmission. (7) Transmission seize.
2.Vehicle moves slow, engine starts but stops immediately.	(1) Shoe spring damaged. (2) Clutch outer and weight seize. (3) Pivot seize.
3.Engine weak at start.	(1) Drive belt worn or slips. (2) Weight roller worn. (3) Drive pully bearing seized. (4) Weak drive face spring. (5) Drive pully bearing worn or seized.
4.Engine weak at high speed.	(1) Drive belt worn or slips. (2) Weight roller worn. (3) Drive pully bearing worn.
5.Abnormal noise or odor.	(1) Oil or grease spilled on the drive belt and inside pulley. (2) Drive belt worn. (3) Weak drive face spring. (4) Drive pully bearing worn or seized.

CLUTCH DRIVE/DRIVEN PULLEY ..... Check tire pressure	CAUSE OF TROUBLE
1.Steering is heavy.	(1) Streering head adjuster excessively tightened. (2) Streering cone race or steel ball damaged.
2.Wheels wobbling.	(1) Excessive wheel bearing play. (2) Rim bent. (3) Axle nut loose.
3.Motorcycle pulls to one side.	(1) Front wheel and rear wheel not aligned. (2) Front fork bent.

POOR FRONT/REAR SUSPENSION PERFORMANCE

Check tire pressure

	CAUSE OF TROUBLE
1.Suspension excessively soft.	(1) Cushion spring weak. (2) Over loaded. (3) Damper oil leaks.
2.Suspension excessively hard.	(1) Fork pipe or cushion rod bent.
3.Noise from the suspension.	(1) Slider stuck. (2) Cushion stopper rubber damaged.

POOR BRAKE PERFORMANCE

Check tire pressure

	CAUSE OF TROUBLE
1.If the arrow were mark and the brake panel mark match with each other.	(1) Brake shoe worn. (2) Brake cam worn. (2) Shoe and cam contact surface worn. (2) Brake drum worn.
2.Brake noise.	(1) Brake shoe worn. (2) Foreign matter in the brake lining. (3) Brake drum worn.
3.Poor braking.	(1) Brake wire defectiver or expanded. (2) Only part of the brake shoe makes contact with the brake drum. (2) Clay or moisture inside the brake drum. (2) Brake lining contaminated by grease or oil.

FUEL GAUGE

GAUGE READING INACCURATE (IGNITION SWTICH ON)

CAUSE OF TROUBLE

1.Operate the turn signal to check the battery circuit.

Signal operates satisfactorily

Signal continuously operates dim or does not operate at all. →
(1) Fuse cut.
(2) Battery weak or totally discharged.
(3) Faulty ignition swich.
(4) Faulty terminal connection.
(5) Wire harness damaged.

2.Remove the fuel level sensor, and move float to check the status of operation.

Float up : Full position
Float down : Empty position

Needle not moving

Needle moves. → (1) Faulty float.

3.Short- circuit the tank unit terminal on the wire harness side.

Needle not moving

Needle not moves. → (1) Balance coil damaged or shorted.

4.Terminal joints loose or faulty connection.

Unsatisfactory. → (1) Terminal loose.
(2) Faulty terminal connection.

Check → (1) Balance coil/lead shorted or damaged.

GAUGE NEEDLE SHAKES OR VERTICALLY WOBBLES. (IGNITION SWTICH ON)

CAUSE OF TROUBLE

1.Operate the turn signal to check the battery circuit.

Signal operates satisfactorily

Signal continuously operates dim or does not operate at all. →
(1) Fuse cut.
(2) Battery weak or totally discharged.
(3) Ignition swich damaged or shorted.
(4) Terminal loose of faulty connection.
(5) Wire harness damaged.

2.Remove the tank and operate the float.

Needle moving

Needle not moves. → (1) Faulty fuel level sensor connection.

3.Move the float rapidly. One up/down motion per second.

Needle moving

Needle not moves. → (1) Damper oil inside the meter insufficient.

4.start the engine, and measure the fuel level sensor resistance.

Resistance not changed

Resistance changed significantly. → (1) Faulty connection between the sliding arm and the resistance.

5.Check each joint.

Unsatisfactory. → (1) Terminal connection loose or faulty connection.

Satisfactory → (1) Balance coil/lead shorted or damaged.

STARTER MOTOR

STRTING MOTOR WILL NOT TURN

CAUSE OF TROUBLE

1.Apply the brake and check the brkae stop light for operaation.

Light is activated.

Signal continuously operates dim or does not operate at all. →
(1) Fuse cut.
(2) Battery weak or totally discharged.
(3) Faulty ignition swich.
(4) Faulty terminal connection.
(5) Ignition swich damaged or shorted.

2.Operate the turn signal to check the battery circuit.

Signal operates satisfactorily. (60~120 signaling/ second)

Needle moves. → (1) Battery totally discharged.

3.Press the starter switch to check the starter magnetic.

Satisfactory

Needle not moves. →
(1) Faulty starter switch connection.
(2) Starter magnetic damaged or shorted.
(3) Connector and terminals loose.

4.Connect the starter to battery and check operation. Light not activated.

Starter turns.

Unsatisfactory. →
(1) Worn brush worn.
(2) Faulty connection between the rotor and brush.
(3) Faulty the starter motor subwire connection.
(4) Terminals loose.

→ (1) Wire harness damaged.

STRTING MOTOR TURNS SLOW OR FAILS TO CRANK MOTOR

CAUSE OF TROUBLE

1.Operate the turn signal to check the battery circuit.

Signal operates satisfactorily.

Signal continuously operates dim or does not operate at all. → (1) Battery totally discharged.

2.Connect the starter subwire to the battery.

Turns slowly. (with speed not changing)

Operates sitisfactory. →
(1) Connector/terminals loose.
(2) Faulty starter relay connectior.

3.Operate the kick starter.

Operates heavy. → (1) Engine seized.

Operates light. → (1) Faulty connection between the rotor and brush.

STRTER ROTATE WITHOUT STOPPING

CAUSE OF TROUBLE

1.Turn off the ignition switch.

Will not stop

(1) Pinion seized.

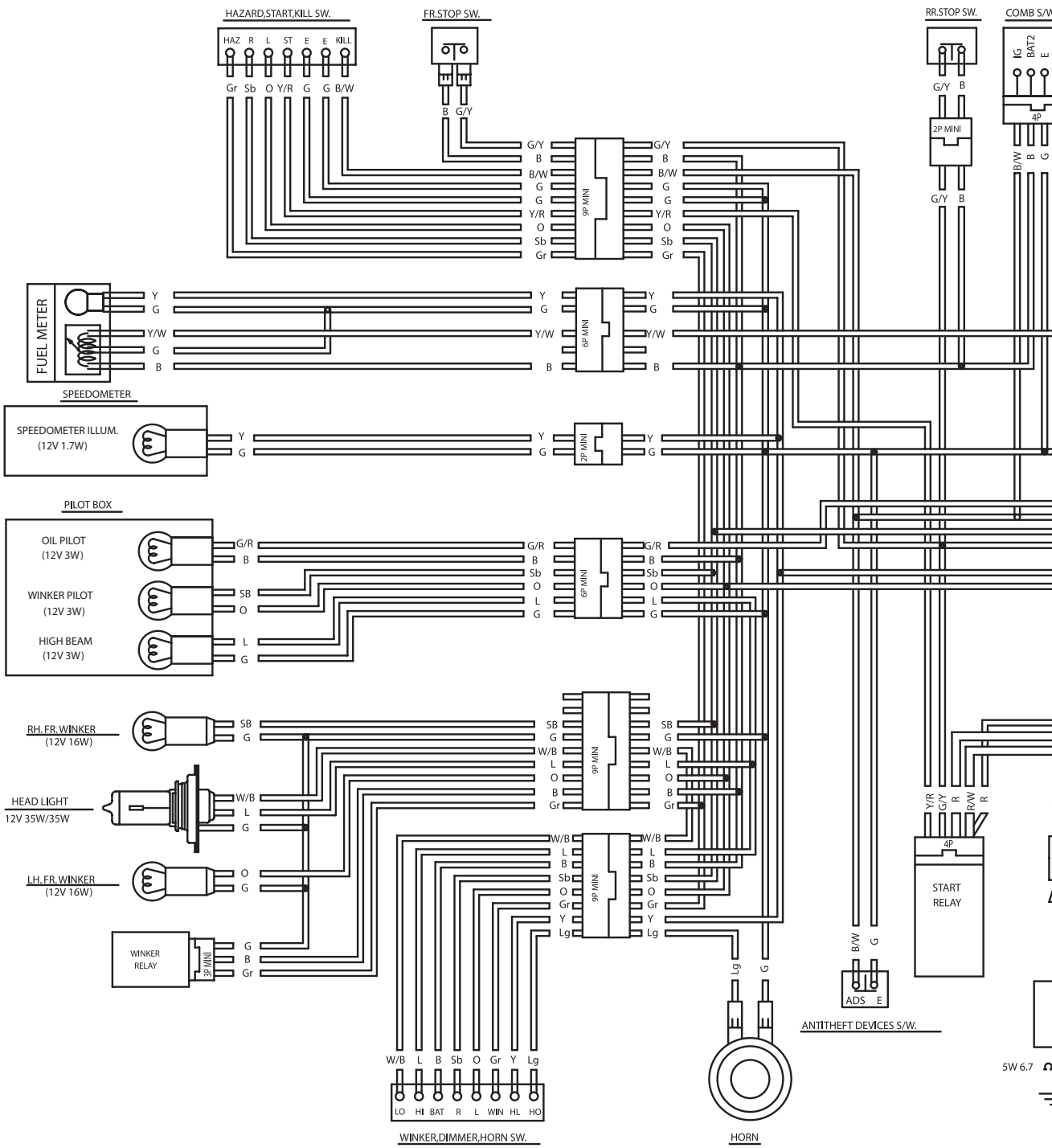
→ Starter relay connection seized.

MEMO

MEMO

MEMO

18. WIRING DIAGRAM



HAZARD S/W

	HAZ	R	L
OFF			
ON	○	○	○
CORD COLOR	Gr	Sb	O

KILL S/W

	KILL	E
OFF		
ON	○	○
CORD COLOR	B/W	G

ANTITHEFT DEVICES S/W.

	ADS	E
FREE		
PUSH	○	○
CORD COLOR	B/W	G

START S/W

	ST	E
FREE		
PUSH	○	○
CORD COLOR	Y/R	G

DIMMER S/W

	HL	LO	HI
LO	○	○	
N	○	○	○
HI	○		○
CORD COLOR	Y	W/B	L

WINKER S/W

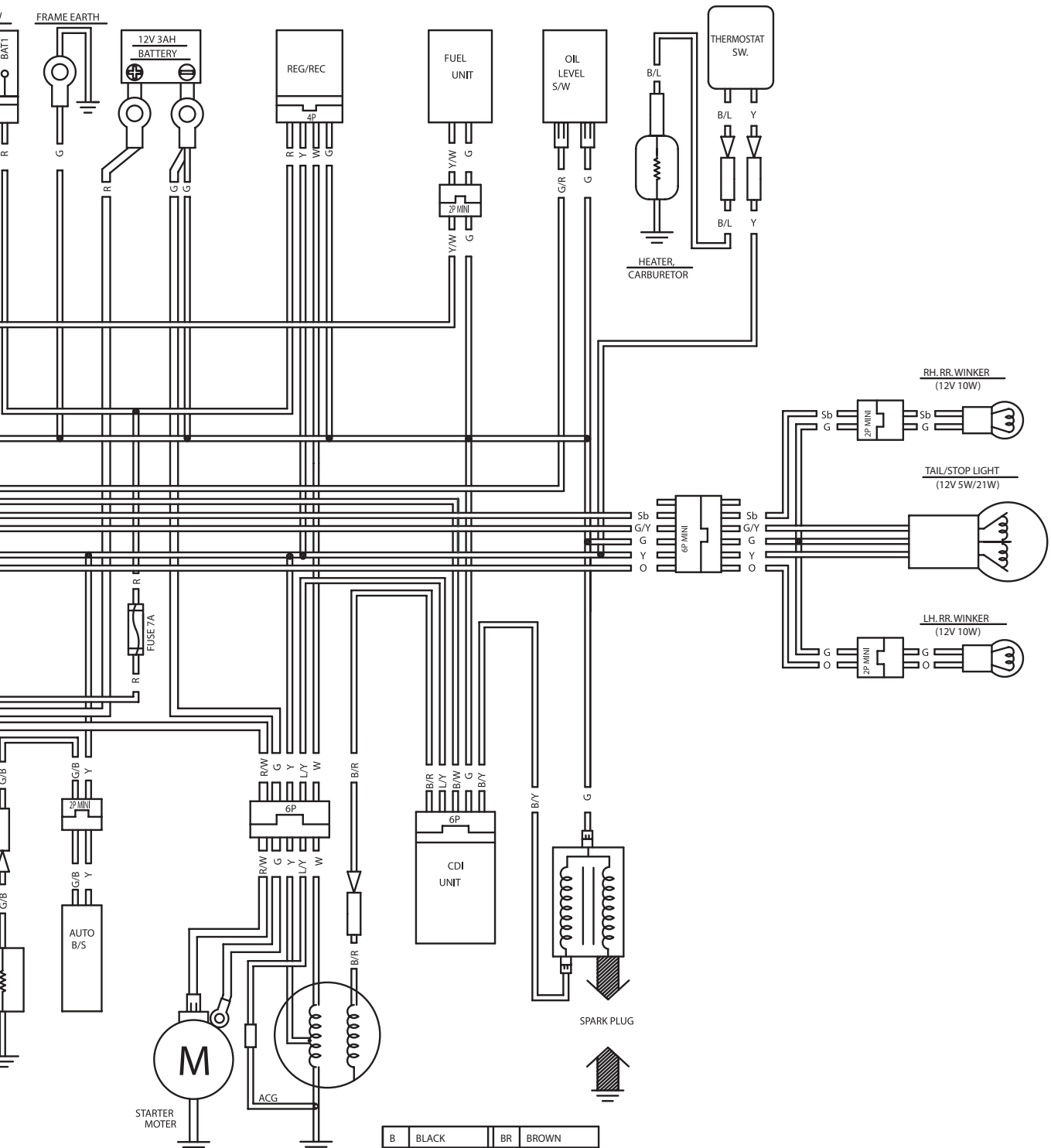
	R	L	WIN
L		○	○
N			
R	○		○
CORD COLOR	Sb	O	Gr

HORN S/W

	HO	BAT
FREE		
PUSH	○	○
CORD COLOR	Lg	B

COMB S

	IG	E
ON		
OFF	○	○
LOCK	○	
CORD COLOR	B/W	G



B	BLACK	BR	BROWN
Y	YELLOW	O	ORANGE
L	BLUE	SB	SKY BLUE
G	GREEN	LG	LIGHT GREEN
R	RED	P	PINK
W	WHITE	GR	GRAY
COLOR COMB. : GROUND/MARKING			

	BAT1	BAT2
	R	B

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DAELIM MOTOR

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